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This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers are also included. Details of society proceedings, including the titles of papers read, officers elected, etc., can be located in proceedings under Societies, Editorials, News of the State, Marriages, Deaths.

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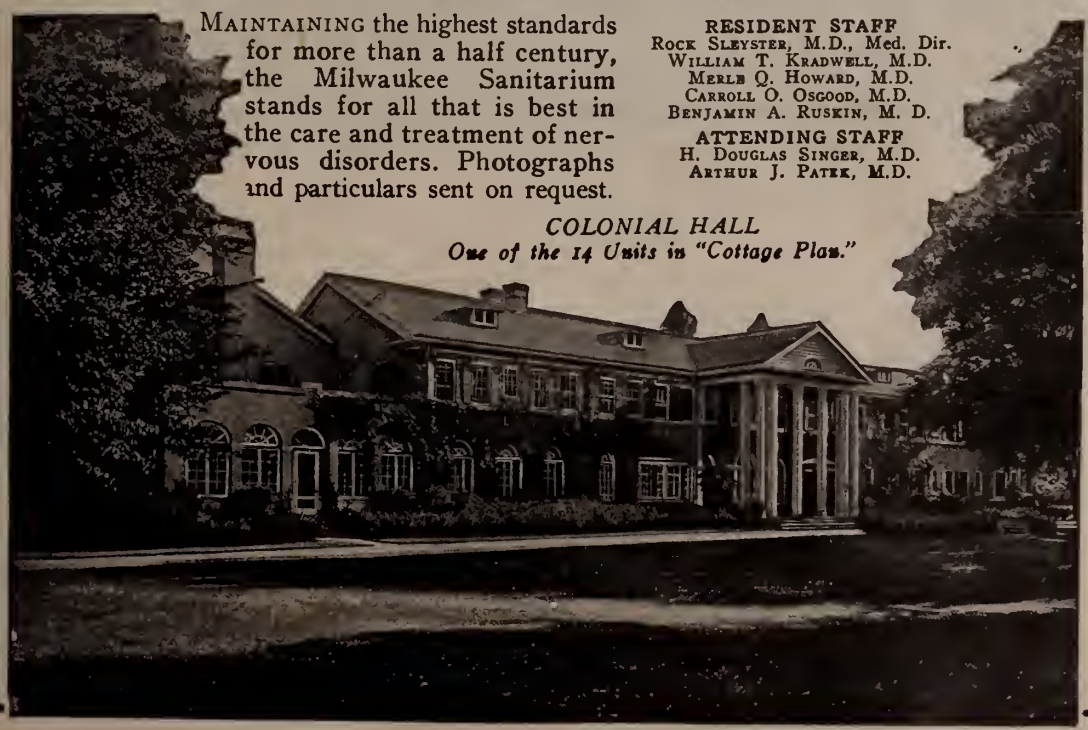
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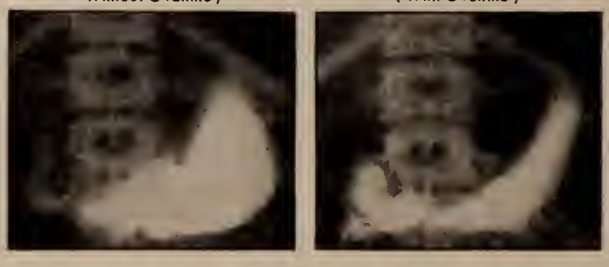
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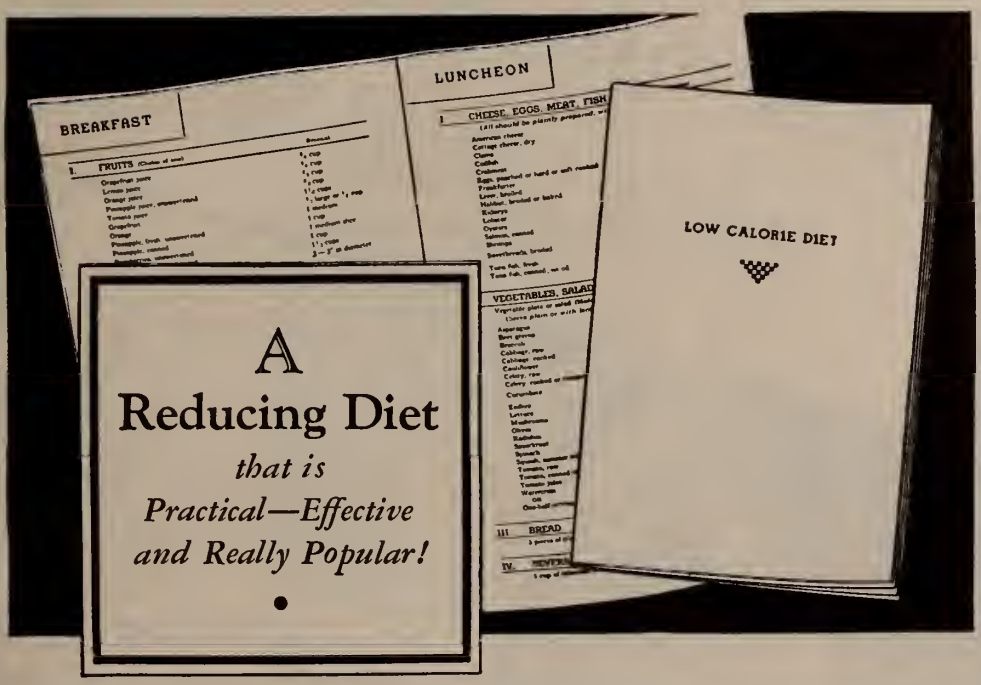
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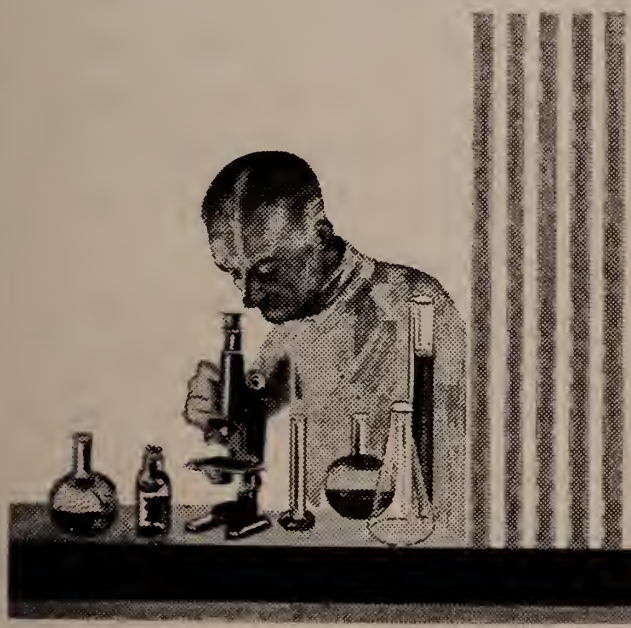
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ILLINOIS MEDICAL JOURNAL

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Editorials

FEDERAL CONTROL IS AN INDISPENSABLE ELEMENT IN ANY SUCCESSFUL SYSTEM OF HEALTH INSURANCE AND SUCH CONTROL IS BOTH DIFFICULT AND UNDESIRABLE

Health insurance, legislatively imposed, can function only under federal control. This aspect of the plan presents many difficulties and must inflict many hardships both physical and financial.

The expense is enormous. In Germany $300,000,000 and in Great Britain $160,000,000 per year is spent for inferior work and for relatively small populations. In Germany 35,000,000 insured pay four times as much for medical care as 30,000,000 not insured. If all persons in the United States were insured the cost would be from two to three billions of dollars per year. If all the unemployed and other classes are included, as they must be to give the scheme any value and completeness, the expense may easily rise to as much as four billions of dollars. Fifty per cent. of the income is usually accepted as the amount to be supplied by the government for its share of this expense in management, and if the indigent are added the whole burden should be on Federal shoulders.

And federal funds come only from tax-payers.

Now, if health insurance is established the difficulties arising from the administration of Emergency Relief in the United States will be multiplied many times over in the attempt to develop, rule and guide a uniform insurance plan among the varied and diverse state populations: —some of which have as high as fifty per cent. of colored voters without taxable property (Mississippi and South Carolina). Even the various counties of many highly advanced commonwealths will not consent to regimentation. Many years must elapse before the infinite complexities of this nation can be conducted from a single center.

Ultimately the effort must result in an enormous bureaucracy. In Germany there are

2,000 more insurance administrators than physicians in the Krankenkassen. Political control is injurious to the system; unfair to the patient, disheartening to the doctor and destructive to the proper practice of medicine.

Conduct of a compulsory and often almost universal health and medical service placed in the hands of a lay board or commission, means that this vast project is entrusted to people wholly unfitted for the task and unfamiliar with its problems. Such organizations soon become so powerful financially and politically that they cannot be altered or dislodged as the welfare workers are well aware.

When benefits are distributed to individuals through an extensive administrative group with numerous employees, quickly the combination becomes a gigantic and extremely powerful political machine.

This very natural result advances the directoral body in power but always depreciates the quality of medical service. Restrictions on scientific practice are imposed by lay administrators which benefit the politics and the treasury of the organization rather than the patient.

Now while it does not insure health or stop illness sickness insurance is a source of degradation and mental degeneration to the insured.

The patient malingers, or is suspected of it, and his feelings are hurt by the inquiry, or antagonized by discovery. Much time is wasted in bringing this sort of fraud to light. Sickness insurance creates neuroses and prevents their proper and efficient treatment. The greed to get something back for money spent is always present among the insured and urges them to seek aid. Prescriptions, expensive and often not needed, are regularly demanded and either the patient is served or the doctor is criticized, even cashiered.

Usually accepted indices of health conditions reveal the need for the presentation of such evidence. From the statistics published by the League of Nations it is manifest that in 1933, the United States *without* health insurance or state medicine;

1. Experienced a lower general death rate.
2. Experienced a lower infant death rate.
3. Experiences a lower mortality and morbidity rate from diphtheria and tuberculosis than did any other first-class national power for which data are now available. In witness whereof the inserted table is emphatic evidence:

MORTALITY AND MORBIDITY, 1933

	All deaths Per 1,000 Population	Infant deaths Per 1,000 Births	Diphtheria Per 100,000 Pop. Deaths	Diphtheria Per 100,000 Pop. Cases
United States	10.7	59	3.9	39
Germany	11.2	76	5.6	114
England and Wales	12.3	63	6.3	117
Scotland	...	81	7.2	180
France	15.8	75	...	50
Irish Free State	13.6	65	12.9*	113
Poland	14.2	128	17.0*	52
ILLINOIS	10.5	49	1.7	22

*1932.

Health improvement has been more rapid in the United States than in any other nation except some of the small nations with homogeneous populations and many of the states in the Union have health records equal to those of any nation. This experience is indisputable witness to the statement that the system prevalent in the United States of ethical medical practice supplemented by our system of public health service is the most adequate as yet evolved by mankind. Nor can ventures such as these interlocking systems be administered by independent companies because: 1. the indigent class have no money for Health Insurance, and 2. the low income class can be cared for only imperfectly by this system as crucial experiments in other nations have shown. No system of sickness insurance is, or can be supported entirely by the contributions of the beneficiaries nor yet with the help of employers. If not compulsory, the young and healthy will not join and the old and feeble, if accepted, will raise the cost to a prohibitive degree and if rejected will remove the protective feature and exclude those in most need.

Taxation is a necessary component. The project unlike other forms of insurance does not lend itself to actuarial accuracy. Where there is taxation there is always governmental domination and control.

SOVIETISM IS GETTING ILL FROM ITS OWN BITE

Midsummer dispatches from the land of unrest,—U.S.S.R.—indicate that its national appetite for abortion has palled.

After the Cheka and O.G.P.U., and that infamous decree of Nov. 18, 1920, which permitted artificial abortions for medical and social reasons,

the gentle pastime of murder became more and more a national sport and the curette as much mightier than the pen as is the pen than the sword.

After long and wordy discussion on May 26 the Soviet government published a bill purporting to make artificial abortion illegal and to encourage child-bearing by amendments to divorce laws, help to pregnant women and enlargement of lying-in hospitals, public nurseries and kindergartens. The bill was sent for discussion to the people at large as well as to the press, to scientific societies, etc.

The civilized world thought the 1920 decree a pretty barbarous affair, and those who worship at the feet of Lenin and the soviet have had small comment to make upon what is hailed as an advancement in general culture and an improvement in the public conscience by this tentative legislation of May, 1936! "Improvement in cultural and material level has increased the birth-rate and brought about a marked decrease in abortions" was the casus belli according to soviet mouthpieces. May be so, may be so!

Anyway the Central Executive Committee of the Union of Soviet Republics is now out with this bill that is not so far away from the ethical acceptance of a possible abortion—i.e., only when the operation would be the last resort to save the mother's life.

Otherwise two years in prison are arranged for the physician-operator and when made by a person minus medical education the sentence is three years and upward. The woman herself who breaks this law—if law it becomes—will be "indictable to public censure, and on repeated violation thereof to a fine of 300 rubles." Just where, even when permissible, an operation of that nature might be performed unless in a gypsy van, public stables or the street corner, it is hard to reckon since the tentative May bill says abortion can not be performed, "in ambulances, clinics, hospitals, private houses, etc., etc."

Further, the bill is out to eliminate frivolous marriages, and stabilize the family. One step in this direction is that *both parties* must be present in the registry office, in cases of divorce, and that the divorce must be registered in both passports while the high cost of living is matched by the high cost of divorce,—fifty rubles for the first; 150 rubles for the second, and for the third, the sum of three hundred rubles.

According to citations made in the Journal of the A. M. A. "Alimony must be recovered for the children's maintenance after divorce, one-third of the respondent's salary for one child; a half for two children and 60 per cent for three and more.

"The government proposes to improve the material status of mothers. Instead of 32 rubles as received now for a dowry for the new-born there will be given a dowry of 45 rubles and 10 rubles monthly instead of 5 for feeding the infant. The mothers having more than seven children, the government will pay after the birth of each child 2,000 rubles for five years; to mothers having eleven children, 5,000 rubles after each additional birth, and beginning with the second year, an annual help of 3,000 rubles extra during the four years after the child's birth.

"By Jan. 1, 1939, there must be organized 11,000 new lying-in beds in cities and 32,000 in country districts, half of them in obstetric departments of country hospitals and the second half in newly established collective farm lying-in houses. The number of beds in public nurseries must reach 800,000 in towns and 4,500,000 in country districts by the same time.

"Fifteen million rubles extra will be devoted this year especially to training supplementary medical personnel.

"The number of places in city kindergartens will reach 2,100,000 by the end of 1938, instead of 700,000 as at present.

"In country districts there will be organized preschool groups for 23,000,000 children. This year 35,000,000 additional rubles for instructing new teachers will be assigned. To realize these measures the government will give this year, besides 1,881.3 million rubles for social insurance, 672.8 million of rubles. They will be divided as shown in the table.

"All the foregoing measures must be realized during the next two and a half years."

Further cited is this table of distribution:

DISTRIBUTION OF APPROPRIATIONS

City lying-in beds	22.2 million rubles
Country lying-in beds	23.8 million rubles
Public nurseries	320.0 million rubles
Kindergartens	221.0 million rubles
Children's milk kitchens	9.0 million rubles
Total	596.0 million rubles
Except for	
Erection and maintenance of public nurseries	11.8 million rubles
Improvement of kindergartens	30.8 million rubles
New staff education	50.0 million rubles

From all of which, coupled with other bits of news seeping from blood-red Russia it would seem that sovietism is getting ill from its own bite.

And that calls to mind the adage anent the falling out of thieves!

REAPING THE WHIRLWIND

Aeolus, King of the Winds, was a grand old man. From the tricks he tried and the craft he plied, the sailors of mythological days learned that when Aeolus loosed his biggest winds, seafarers reaped the whirlwind. For the last ten years there has been a return of Aeolus with his principal efforts directed towards the medical profession, which is caught in the big winds of bombast and fustian, directed as propaganda for state medicine, a socialized medical profession and compulsory health insurance.

The duly protested Japanese invasion of American industry is small time marbles compared to the politician's invasion of the sacred science of medicine—sacred because of its traditions, its purposes and its essential honor.

Any system that tends to lower and even actually to abase any unit of civilized life that both protects, and develops the mental, moral and physical perfection of the populace is an odious, even a vicious visitor to the American nation.

Aeolus' cave of the winds today, is built securely among the numerous and solid "rocks" of misguided philanthropists. These winds themselves are nourished by huge trust foundations, private endowments and silk-shod communists. It is time that all-American patriots and the organized medical profession get together and smoke out the modern Aeolus and his backers before their gusty blasts blow to bits the staunch tug-boat of the "Ship of State",—ethical, scientific, efficient medicine and its practitioners.

BRITISH COLUMBIA PROFESSION OPPOSES NEW SICKNESS INSURANCE LAW

That the medical profession of British Columbia is by no means satisfied with the new sickness insurance law is shown by the following extract from an editorial in the *Vancouver Medical Association Bulletin* (13:91 [Feb.] 1937):

"Every member of the profession in British Columbia will be asked before long for his vote on the acceptance or rejection of the plan suggested by the Health Insurance Commission.

"We are undoubtedly at a very vital crossroads in the history of medicine, not only in British Columbia but throughout Canada. It behooves us all to think gravely and carefully before we act. Not temporary expediency and not apparent self interest must guide us, for what may seem of benefit at the moment may later turn out to be the first step to suicide.

"Nor must we let ourselves be influenced by defeatists and those who would urge us to a *sauve qui peut* policy. Thank God, there are few of these in our ranks, but there are some, and we must not give them undue ear.

"Nor need we yield to fear. We have been told in no uncertain terms that the end of bargaining has been reached—that we can expect no further concessions. Further, we are advised to accept the terms that are offered, as otherwise there will be a fight and, we are told, a bitter one. So we come to the end of nearly three years of what may be called bargaining, if by bargaining we are to understand a state of affairs where one side offers less and less, and the other is expected to yield more and more. Poor as the first act was, it was immeasurably ahead of this one, and baits held out have been withdrawn one by one till there is little in the poor fragment left to attract the hungriest fish.

"One or two outstanding considerations emerge from this long struggle. The first is that expediency and not statesmanship, political profit and not service to the state, have gradually cheapened and weakened what was in its inception a noble scheme, fraught with great promise of good, and demanding the sympathetic cooperation of our profession. But the present scheme is a miserable patchwork. Those who really need medical care most are completely omitted from its provisions; those who are dubbed 'beneficiaries under the act' will not get the full service they have been led to expect. . . .

"As for the consultant and specialist — these are asked to send in bills according to the schedule of fees of the British Columbia Medical Association, but what share of these they receive will depend, not on this valuation, but upon the proportion that the total bears to the amount in the fixed pool, which cannot be exceeded. No business man would consider for one moment signing any contract on such terms; no member of the Commission would ever consent to work under such conditions as that his salary would depend, not on agreement beforehand, but on the amount of money available after all expenses had been met. Nor should we agree to work on any such conditions."—*Jour. A. M. A.*

DANGEROUS DAN M'CROBE

A bunch of germs were hitting it up
In the bronchial saloon;
Two bugs in the edge of the larynx
Were jazzing a ragtime tune.
Back in the teeth, in a solo game,
Sat dangerous Ack-Kerchoo;
And watching his pulse was his light of love,
The lady who's known as Flu.

MEDICAL ECONOMICS

H. M. Camp, M. D.
E. P. Coleman, M. D.
John R. Neal, M. D.
I. H. Neece, M. D.
W. M. Hartman, M. D.

Edited by the Committee on Medical Economics of the Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

R. K. Packard, M. D.
Ralph Peairs, M. D.
C. B. Reed, M. D.
C. S. Skaggs, M. D.
C. E. Wilkinson, M. D.

Address all letters and communications to the Chairman.

One of the most unkind remarks of the English language is "I told You so." We have no intention of indulging in that banality. However, the developments of the annual meeting of the American Medical Association at Atlantic City, June 7-11, should make all of us sit up and take notice. From the opening speech of Dr. Heyd, the economic problems of the medical profession held the center of their attention. The dangers of governmental supervision were referred to repeatedly, culminating in a resolution introduced by a delegate from the New York State Society, Dr. Kopetsky, whereby it was held unavoidable for the medical profession to longer remain outside of the control of the federal government and the suggestion was made that organized medicine capitulate and offer to become an instrument of the government. This was more revolutionary than even the most pessimistic of the delegates had considered and it was too bitter a pill for them to swallow. Accordingly, the resolution failed to receive the approval of the House of Delegates. Every member of the medical profession should read the speeches of both Dr. Heyd and President Uham, as well as the resolution of Dr. Kopetsky if the same is made available through the columns of the JOURNAL, where the others are to be found in the Transactions of the House of Delegates. If, after reading them, the reader can sit back in smug complacency and delude himself with the famous "It can't happen here," he is hopeless. After that he had better read the talk of Senator James Hamilton Lewis, the senior Senator from Illinois, presented to the House of Delegates in executive session on Thursday morning at his own request, when on his own statement he brought the personal message from the President of the United States. Among other things he said: "The federalization of medical practice was inevitable in some form." Also "That you are advancing to be treated as a Federal official, there is no doubt. You are on the way, as soon as you qualify as a doctor in your State and your local community to be soon made a member, enlisted among those of the profession, of the Federal Government and as such to be put in something of the position of a Captain and officer of the army and navy." In discussing the present patient-family physician relationship long stressed by the medical profession, he stated, "We know nothing about a patient, don't recognize his existence; it is your creation. We recognize an instrument called 'citizen,' who is essential to the welfare of the government. He takes the form of man and woman. You have professed to be able to help him carry on his life. We need his life for usefulness in civil affairs and in military affairs for defense of the nation, and now since you assume to take care of the mother of that child that is to come forth, and of the mother herself that is to help to give guidance to it and the father who must help to maintain and sustain it, we are compelled to tell you that we have got to treat you as an officer of the Federal Government and turn you into such, and ask you to consider of yourself as an official of the Federal Government taking care of the citizen."

"Then, since that is the position, in which you are going to be put, and which every hour you reach nearer and nearer, pardon me, if, as a professional brother, I say that it is nothing less than absurd for men to come around you and say: 'This is an invasion, it ought to be resisted, it ought not to be adopted. It may be that you are right, but it is the policy that seems to possess mankind in his advances all over the world, and since it is up to us to be acted on, Lewis has come down to make this suggestion." He then goes on to make a suggestion that organized medicine get ahead of the government, even though in the same breath he tells us that he has already drawn the bill to make the referred changes, and tell the government that we are willing to cooperate and make constructive

suggestions as to how the health of the citizens can best be preserved.

Regardless of the fact that the President is quoted the following day in the newspapers as denying that there is any plan under consideration for the federalization of the medical profession, it is not surprising that the majority of the delegates who listened to the talk of the Senator of Illinois left the meeting with the feeling that he, the Senator, had sung the swan song for the medical profession unless there are revolutionary new developments in the theory of government at Washington. It is to be hoped that the Officers of the American Medical Association have investigated the true state of legislation in Washington and that the elements of leadership are present in the AMA to convince those in authority in Washington that any radical reform or change in the manner of conducting the practice of medicine will result in irreparable damage to the sick of the United States and of course to the United States of America. Forceful, adequate leadership is the crying need of the medical profession of America. We must insist on it and be willing as individuals to follow this chosen leadership by action and word, even in the event that we do not understand all the reasons for the decisions to be arrived at. A united medical profession is the first need. We feel sure that the delegates of the association will be able to get at the proper solution when the facts are presented to them by the Board of Trustees, as they undoubtedly will.

This Committee recommends that every doctor in the state read the entire talk of the Senator from Illinois The reports of the meeting in *Time*, June 19, as well as in *News-Week* of the same date are quite complete and should be carefully read by all.

The Committee for the coming year will consist of the same men as last year, except for a couple of men who have asked to be excused for a time due to the press of other work. You can see the names of the Committee on the heading of this column. We feel that the column is not used as much as it should be as a Forum where men may advance new ideas and discuss some of the problems with other physicians. Space will always be available in the column for any man who wishes to use the same, and the articles should be sent to the Chairman at Kankakee. Let us use the opportunity to discuss with one another the problems of medicine afforded by the column.

A word in regard to the future work of the Committee on medico-legal affairs is appropriate at this time. The action of the Ethical Committee of the American Bar Association, declaring malpractice insurance on the part of State Medical Societies as unethical, has necessitated some changes in the manner of conducting the work of this committee. These changes have not been definitely formulated at this time. When this has been done, the members of the Illinois State Medical Society will be informed promptly. We feel that we can safely assure them at this time that the Committee will continue active and will be ready and willing to offer that assistance which the medical profession desires in malpractice cases, without violating either the letter or the spirit of proper ethical procedure. The professional men of the United States have common problems and it is evidence of wisdom on the part of all to settle differences of opinion peacefully and promptly.

This month an article by a member of the Committee, Dr. W. M. Hartman, on the subject of Doctor Bills is included in the column. Dr. Hartman has been working on this subject for the past year and is finally getting the subject in shape to have some definite ideas and suggestions. We hope that the article will be read and enjoyed by many of the profession in Illinois.

E. S. Hamilton,
Chairman of Committee on
Medical Economics.

DOCTOR BILLS

The opportunities and responsibilities of organized medicine are increasingly obvious. The implications of social theories so abundantly and generously voiced today should draw the attention and study of every physician and serve to make him conscious of the great need of efficient medical organization. Political forces are active in the effort to extend government activities in the field of medicine, and these forces can be most effectively met by pressure through local county units.

In this rapidly changing world and its complicated political problems, economic difficulties arise and challenge all that the union of science and humanities in the office of the humble med-

ical practitioner can offer his people in service. Some critics of organized medicine seem to believe that the medical profession is now "unionized" and that it exacts its toll from the public with all the callousness of a gangster. These individuals do not understand the essential differences between the ethical standards of the practice of medicine and of the practices of business. These differences need not stand in the way of meeting our economic difficulties by a combination of Medical Ethics and Better Business Methods in efficient organization; and that, I assume, is one of the reasons we have a Committee on Medical Economics.

In every community, or group of communities, served by a county medical society unit there are certain individuals," dead beats," who deliberately avoid the payment of "doctor's bills," and it is to the best interests of that unit of physicians to know just who these individuals are. There also exists a group of "slow pay" patients. They can pay one or two dollars as they go along, but are absolutely unable to pay a bill of $25.00 to $100.00 in one payment. These people want to pay, and the conscientious physician wants to serve them if he can. The Finance Corporation has stepped in and is providing a means for the patient to get his ice box, radio, furniture, etc., that he cannot purchase for cash, by a system of credit rating and installment buying. This introduces the subject of credit problems to the doctor, who has hitherto given little, if any, thought to the subject, but now finds that grim necessity forces him to it. Shall he go on charging and do nothing about it? Shall he go on slapping his patients on the back in a "big me, little you" condescending attitude? Will an attitude of *laissez faire* create good will and avoid State Medicine?

It takes years of training before anyone is in a position to satisfactorily handle the credit problems of any business or profession. Such an individual must have, in addition to a sound training, some aptitude for the work. It would be unreasonable to expect that every physician or every business man has the required training or ability to handle the special problems of credit. Large clinics and large stores employ a full time credit man especially trained for the task in hand.

There are commercial credit bureaus operating throughout the state and furnishing collection services primarily to commercial concerns who also furnish credit ratings and collect bills for the medical and dental professions. As I look into this problem, more and more I discover that the Medical and Dental Credit Rating and Collection Bureau is very likely an offspring of the Commercial Credit Rating and Collecting Bureaus, of which there are over two thousand in operation in the country at the present time. These bureaus serve the small merchant, or average business man, or owner of business who has not been trained or who has no aptitude for handling the credit problems of his business. He cannot afford the expense of a full-time credit man and so he shares the support of someone trained in credit work who devotes all his time to the study of the credit problems of the community. If there are thousands of merchants and business men in the country who need such services, the great need of this especial type of knowledge for the medical profession immediately becomes more apparent and the realization of the need for such service is growing.

The fact is that most physicians have no liking for their credit problems until crude necessity drives them to the dreaded chore. Usually the job of sending statements or perhaps contacting patients is left to a girl, an offce assistant or stenographer, who "pinch hits" for the doctor. There is not one chance in a thousand to find a young lady with both office training and a thorough training in credit management and a sufficient nursing experience to be an efficient assistant in the office.

A survey made by your Committee on Medical Economics shows that there are in effect in Illinois four credit systems. The first is the famous, almost universal, helter-skelter system. Statements are sent out seldom if ever, or never, or only after the wife has insisted on knowing just why the So-and-So's do not pay up. She notes, with a withering glance at the doctor, that they drive a better car than he does and Mrs. So-and-So also sports a brand new fur coat.

The doctor then, in desperation, brings into action the second credit and collection system, "the Collection Agency." Here is where the average physician has been "took to the cleaners" so often that it is going to be difficut to secure his cooperation in future laudable methods because of his fear that they prove to be just another "scheme." "Through letters, articles in

the J. A. M. A. and publications of this bureau, we have repeatedly warned physicians to avoid collection agencies with a contract which contains provisions for the assignment of accounts, a grant of power of attorney and arrangements to govern the handling of monies received. Unless such a contract is fully explained, it is certain to be misunderstood. The provisions are usually drawn in favor of the company and, once a physician has signed the agreement, the company can lawfully conduct activities that may result in an actual loss for the physician."—Bureau of Medical Economics, A. M. A.

These organizations are not concerned with personal relationships of doctor and patient, nor do they deal with the social or economic phases so important in private medical practice. They are interested in profits and volume of business.

The third system in the commercial credit rating and collecting service used by local merchants, handled by a resident manager, and offered to the local physicians and dentists. This service does not use a contract and varies its rate according to the age and size of the account. It usually is affiliated with other similar outside associations and is reliable and ethical. Outside of the larger industrial centers in the state, this is the service that is most commonly used, and it seems to be giving general satisfaction.

The fourth credit system is the professionally owned or controlled agency, or bureau, which offers better resuts for the physician, and for the public a more satisfactory relationship with the doctor. There are two general types. One type is a credit rating and collection service, pure and simple, operated by a lay credit man, and controlled and endorsed by the local county medical society. The success of this arrangement depends on the personality and skill of the manager plus the patronage and cooperation of the physicians. One such successful setup in Wisconsin combines 100% membership of the physicians and dentists of two counties, with almost 100% cooperation.

The other type of professionally owned or controlled system is the Medical-Dental Service Bureau. In this setup the collection of accounts is secondary, or a part only, of what is a County Medical Society's plan of medical service. This service varies according to the needs of the communities served. It lists the dead-beats, makes arrangement with the slow pay patients to budget their medical expense and prorate their medical fees on a reasonable level that can be met. It arranges partial payment plans, or for loans to meet payments. It arranges with the proper authorities for the medical and surgical cure of indigents by contracts or agreements with the county medical society as a whole and not with some especial individual. The matter of professional fees is not at all approached from the collection agency standpoint.

A telephone exchange in the bureau's office may be maintained for the handling of calls. Sometimes a nurses' registry is furnished. Public information concerning the services and objects of the medical service bureau is important, as well as public health information, all of which can be made vital functions of the organization.

The following professionally owned or controlled agencies or bureaus are in successful operation in Illinois:

The Medical-Dental Service Bureau, Decatur. This organization has been in existence for two years and now has ninety-two members. Hospitals and druggists are not included. Credit ratings, collections, dental payment plans, adjustment of bills, telephone service and public relationship are the services given.

Jackson County Medical, Dental and Hospital Bureau, Murphysboro, organized in July, 1935. Its membership is composed of all the physicians, dentists and hospitals of Murphysboro and Carbondale. Its services are collections, credit ratings and partial payment plans.

The Doctor's Service Bureau, Chicago. Organized in June, 1935, and has one hundred and eighty members, all members in good standing of the Chicago Medical and Chicago Dental Societies. This bureau has been endorsed by the Aux Plaines Branch. Its services are collections, finance, credit information and purchasing.

The Will County Credit Bureau has been organized about the first of the year. This is a credit and collection service for doctors, dentists and druggists, and membership is optional.

The Medico-Dental Credit Rating Bureau, owned and managed by Mr. Harry E. Boyd of East St. Louis operates in St. Clair, Madison and Monroe Counties. It is approved and used by most of the members of St. Clair County

Medical Society. It furnishes credit ratings and collections.

In Sangamon County there is a Physician's Credit Rating Bureau connected with the Physician's Exchange. This service seems not to be used to a great extent.

In adjoining states there are a number of medical service bureaus in successful operation. One of the most successful is the Medical and Dental Business Bureau Incorporated of the Indianapolis Medical Society and the Indianapolis Dental Society, which has been operating for several years. This setup is mentioned here because its plan seems to serve as a popular model for similar services now under consideration in Illinois.

The Bureau of Medical Economics of the American Medical Association has a special report published in pamphlet form entitled "Medical Service Plans." This is a very thorough study of the various ethical, social, professional, political and practical angles of Doctor Bills. All who are interested should study it carefully. Their publication, "Collecting Medical Fees," will soon be issued in revised form.

W. M. Hartman, M. D.

DR. A. E. OWENS HONORED AT PERRY MEMORIAL STAFF MEETING AT PRINCETON, ILL.

On Friday evening, May 21, the physicians of the Perry Memorial Hospital Staff honored one of its esteemed members. Dr. O. J. Flint was chairman of a committee including Drs. Hopkins and Scott, to celebrate a half century of practice by Dr. Owens, in Bureau County.

In his remarks, Dr. Flint pictured the hardships undertaken by Dr. Owens. Born on a farm near Earlville, Illinois, on July 20, 1857, he received his early education in the community, but went to the Chicago Medical College to study the art of healing. Graduating from the medical school in March, 1883, he took over the practice of a Dr. H. M. Garten in Dover, Illinois. Five years later he went to Princeton, where he has practiced continuously except for four years in Oak Park, Illinois.

Dr. Sam Hopkins of Walnut recalled the experiences that Dr. Owens must have encountered. There were no gravel roads in the county—nothing but mud. No hospitals or other conveniences of the present day were available. He practiced before any operations for appendicitis were done; the disease being known only as inflammation of the bowels. It was a time when "Black Diphtheria" was the dread of any community, for there was not any antitoxin to combat the disease. Little was known of any germ diseases. Yet with all these handicaps our physician friend made a record of which we might all be proud.

Dr. Scott depicted Dr. Owens as the "Dean of the Flock." "There is no better evidence to prove this statement than the esteem in which he is held by his brother physicians," said Dr. Scott. "He is honest in his profession and with his fellow practitioners."

On behalf of the physicians, Dr. Owens was presented with fifty silver dollars to commemorate each year of practice in Bureau County. Dr. Bates, as secretary of the Bureau County Medical Society, presented Dr. Owens a telegram received from Dr. Camp, the secretary of the Illinois Medical Society, congratulating him on this occasion and making him a life member in the Society.

AMERICAN CONGRESS OF PHYSICAL THERAPY

Sixteenth Annual Session

Announcement is made of the 16th annual clinical and scientific session of the American Congress of Physical Therapy, September 20, 21, 22, 23 and 24, at the Netherland Plaza Hotel, Cincinnati. The program includes many special features: sectional meetings in the specialties, symposia on short wave diathermy, hyperpyrexia, electrosurgery, etc. Fever therapy and the treatment of vascular diseases occupy an important place and will be discussed by prominent workers in the field. The educational aspects of physical therapy and the relationship of physical therapy technicians to physicians and hospital departments will be thoroughly dealt with. Other features include technical and scientific exhibits and a full day of hospital clinics where technic will be adequately demonstrated.

Physicians, their technical assistants, and nurses working in institutional departments of physical therapy are urged to attend this important session. It undoubtedly will be one of the outstanding medical gatherings of the year. There will be no registration fee.

INTERNATIONAL CONGRESS ON HEPATIC INSUFFICIENCY

While the Universal Exhibition is being held in Paris, the International Congress on Hepatic Insufficiency will be in session at Vichy on the 16th, 17th and 18th of September, 1937, under the presidency of a member of the Academy of Medicine, Prof. Maurice

Loeper of Paris. It will be divided into two sections: 1. Medicine and Biology. 2. Medical, Surgical and Hydrological Therapy.

Papers will be submitted in the two sections by the following gentlemen of different countries:

Medicine and Biology: K. Glaessner (Vienna): The Functional Diagnosis of Hepatic Insufficiency.

R. Debre, Gilbrin, Semelaigne (Paris): Enlarged Liver in Children.

Binet (Paris): The Sulphur Function of the Liver. The Edema Associated with Liver Dysfunction.

Lemaire and Varay (Paris): Pathogenical Study and J. Olmer (Marseilles): Clinical Study.

Uhrbach (Vienna): The Skin and the Liver.

Parhon (Bucharest): The Liver and the Endocrine Glands.

Hamilton Fairley (London): The Stages of Hepatic Insufficiency in the Course of Malaria.

Therapy: Lathan A. Crandall (Chicago), A. C. Ivy (Chicago), Anthony Bassler (New York City), Norman Elton (Reading) and Hyman I. Goldstein (Camden): Hepatic Insufficiency in Its Relation to General Nutrition and Especially to the Nervous System.

M. Brule (Paris): Hepatic Medication in cases of Intolerance.

M. Villaret, L. Justin-Besancon, R. Cachera and R. Fauvert (Paris): Circulatory Insufficiencies and Their Medications.

Piery and Milhaud (Lyons): The Hydro-Mineral Therapy of Hepatic Insufficiency.

DeGrailly (Bordeaux): Cellular Insufficiency and Its Therapeutic Indications.

Gallart-Mones (Barcelona): Diet in the Restoration of an Impaired Liver.

Pribram (Berlin): Pre-operatory and Post-operatory Hepatic Insufficiency and Its Preventive and Curative Treatment.

P. Duval, Gatelier, J. C. Roux, Goiffon (Paris): The Prognostic of the "Operative Crisis" by the Examination of the Hepatic Functions.

It may be recalled that this Congress will be preceded by the Second International Congress on Gastroenterology, to take place in Paris on the 13th, 14th and 15th of September, 1937, under the presidency of Prof. Pierre Duval, at which two questions will be discussed:

1. The Early Diagnosis of Cancer of the Stomach, under the presidency of Profs. P. Duval and Gosset of Paris and of Prof. Konjetzny of Berlin.

2. Acute and Chronic Occlusion of the Small Intestine: Authors have been selected in England, Belgium, Spain, the U. S. A., Italy and Poland for papers dealing with this latter question.

Those desiring to attend these Congresses may receive information by applying to Dr. Anthony Bassler, 121 East 71st St., New York City. A large contingent from this country are arranging to go.

OFFICERS, COUNCILORS AND CHAIRMEN OF THE WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

1937-1938

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Convention: Mrs. H. H. Southwick, 1501 Leland Ave., Springfield.

ILLINOIS STATE MEDICAL SOCIETY

PROCEEDINGS OF THE HOUSE OF DELEGATES

Peoria, May 18-20, 1937

HOUSE OF DELEGATES

The first session of the House of Delegates of the Illinois State Medical Society was held in the Alliance Life Insurance Building, Peoria, Tuesday, May 18, 1937.

The meeting was called to order at 3:40 P. M. by the President, Dr. R. L. Green, Peoria.

The first order of business was the report of the Committee on Credentials.

Dr. E. S. Hamilton, Kankakee, reported that the Committee had certified 117 delegates; 59 from down state, 43 Chicago Medical Society, and 15 members of the Council.

Dr. Mather Pfeiffenberger, Alton, moved that this report be accepted and that these delegates constitute the House of Delegates for this meeting. (Motion seconded by Dr. P. J. McDermott, Kewanee, and carried.)

The next order of business was the roll call by the Secretary.

The Secretary announced that all delegates had been certified on the attendance slips and that a quorum was present.

Dr. Mather Pfeiffenberger, Alton, moved that the calling of the roll be dispensed with, and that the attendance slips constitute the official roll call. (Motion seconded by Dr. J. S. Nagel, Chicago, and carried.)

The next order of business was the reading of the minutes of the last annual meeting.

Dr. E. H. Weld, Rockford, moved that the minutes as published in the July 1936 issue of the Illinois Medical Journal be accepted as the official minutes. (Motion seconded by Dr. J. S. Nagel, Chicago, and carried.)

The next order of business was the appointment of Reference Committees. The President appointed the following Committees:

1. Attendance Committee: Drs. F. W. Nickel, W. E. Kittler, and R. A. Mitchell.

2. Credentials Committee: Drs. E. S. Hamilton, C. B. Ripley, R. H. Hayes, and H. M. Camp.

3. Committee on Reports of Officers (President, Secretary, Treasurer, and Chairman of the Council): Drs. Mather Pfeiffenberger, G. W. Post and H. N. Parkhill.

4. Committee on Reports of Councilors: Drs. L. O. Frech, N. S. Davis, III, and A. W. Meyer.

5. Reports of Standing Committees (Public Relations, Legislative, Medico-Legal, Medical Education and Hospitals, and Relation to Public Health Administration): Drs. R. R. Ferguson, C. W. Carter, and C. H. Phifer.

6. Reports of Council Committees (Education, Scientific Service, Medical Economics, Veterans' Service and Medical Advisory Committee to Illinois Emergency Relief Commission): Drs. G. H. Mundt, C. O. Burgess, and J. J. Pflock.

7. Committee on Scientific Work, Social Security Problems, the Editor and Historian: Drs. G. M. Cushing, E. C. Kelly, and E. E. Davis.

8. Committee on Resolutions: Drs. T. H. Culhane, G. C. Otrich, and F. P. Hammond.

9. Committee on Miscellaneous Business: Drs. Leslie Rutherford, Oscar Hawkinson, and R. H. Hayes.

Dr. L. O. Frech, Decatur, moved that the Committees named be the official Reference Committees. (Motion seconded by Dr. C. B. Reed, Chicago, and carried.)

The President: The next order of business is the consideration of the annual reports. Copies of these reports have been passed out and they will be referred to the Reference Committees. If you wish to make supplementary remarks about these reports, you are welcome to do so, otherwise they will be referred to the Reference Committees as printed.

Each report was called for in turn.

REPORT OF THE PRESIDENT

To the Members of the House of Delegates:

During the year drawing to close, I wish to report that my visits to many of the county meetings all skies look very bright.

The Council meetings and special meeting with Northwestern Conference have been attended by all of the officers, showing their devotion to the Society.

The Secretary has revamped the records of the component societies, issuing cards that should expedite registration at state meeting.

The secretaries have been notified both of standing of their county society and listed eligible members, which should be worked upon to make ours a 100%.

The Journal has kept up its good fight, with the aid of Economics Committee, keeping the membership

posted in latest news. Dr. Hamilton has been untiring in this position.

The Educational Committee has performed a monumental amount of work. They should be given more money and more help in this. If we were taxed a dollar a month, would be small fee, and not hurt anyone; like they will be if regimented and put on salary basis.

The Legislative Committee has functioned as usual, to check over the many bills for hidden jokers. At times, I fear, the locals have not responded heartily enough to Dr. Neal.

The Councilors have functioned 100%. Many refresher courses for their districts, speak for themselves. Their reports, which you will hear shortly will be interesting.

Respectfully submitted,
Rolland L. Green, M. D.,
President.

REPORT OF THE SECRETARY

To the Members of the House of Delegates:

Once more we have the honor of presenting an annual report to the House of Delegates of the Illinois State Medical Society, and to relate some of the outstanding accomplishments and major problems which have been encountered during the twelve months which have elapsed since the last meeting. During the past year this Society has had many new calls for service in addition to the already long list of functions. We are pleased to report that through the frequent deliberations of the Council and the Committees, all of these requests have been properly handled in a most satisfactory manner.

We have had another year of operation of the Social Security Act and today we all know more about it than we did one year ago when no definite plans had been made available. Although in many states plans for the medical sections of the Security Act were submitted soon after the Act began to operate, Illinois was one of the last to submit plans for the approval of the proper Federal Agencies for the carrying out of these medical and health measures. It is the opinion of your Secretary that the plans submitted by the Illinois Director of Public Health are less objectionable to the medical profession than they are in many other states.

Dr. Frank Jirka, Director of the State Department of Public Health, met with the Council on many occasions and has discussed plans which would be of most value to the medical profession, and yet would not reduce the benefits from a health standpoint to those people designated to be the beneficiaries.

A recent questionnaire elicited the information that only a few counties in Illinois now use the old system of having a township, city or county physician, most of them having arranged with the local medical profession to give adequate medical care to their indigent and receive payment direct from the township—usually at a reduced rate from the normal fee schedule. Reports from many communities where this system is now in use are encouraging, and we hope that, in the near future, medical care will be provided by other than a contract basis to divide the work and permit the patient to have his choice of physicians.

At the request of the Director of the State Department of Public Health, the Council recently named a new committee known as the Advisory Committee on the Control of Syphilis which will confer with our State Health Department personnel and aid them in getting the control program under way. To date several meetings of this committee have been held, and the recommendations have been sent to all county medical societies for their information and cooperation. The Committee as well as the Health Department personnel, are thoroughly convinced that the major portion of a syphilis control program must be carried out by the practicing physician, and that this important factor must not be overlooked if the program is to be successful. A report of this committee, with Dr. I. H. Neece as chairman, will be found in this official handbook.

Through a recent action of the Council, membership cards have been mailed to the county society secretaries to be given to all members for whom remittances have been received in our office. Many favorable comments have been received from members following the adoption of this procedure and we believe it has stimulated the payment of the annual per capita assessment this year.

The Society. Our records show approximately 275 more members this year than were reported to the House of Delegates at the 1936 annual meeting. It seems quite logical to believe that in the near future, we will have the largest membership in the history of this Society. It has been said repeatedly during the past few years that when every eligible physician throughout the country is a member of his local medical society, we will have but little fear of "State Medicine" in the United States. Every physician in Illinois needs the assistance of the State Medical Society, and the Society on the other hand, needs all eligible members. We report an increased interest on the part of many component Societies in having 100% memberships as shown by our membership data contained in this report.

Although the Seal of the Illinois State Medical Society has shown that the Society was organized in 1850, research investigations on the part of the late L. H. Zeuch, Editor of the "History of Medical Practice in Illinois," developed the information that the Society was actually formed in 1840, or 97 years ago. A few meetings were held in the early "forties" but it was in 1850 that a reorganization was perfected which resulted in regular meetings. The Council recently authorized a change in the Seal to show the actual organization as in 1840, which change will be made on the Seal and the stationery following this annual meeting.

New committees have been formed and the services of others have been extended during the past year. At the invitation of the Society two years ago, the American Society for the Control of Cancer has conducted a cancer survey in Illinois similar to surveys made in many other states, and a report of same will be made available within a short time. It will appear in the Illinois Medcal Journal and will probably be available later in the form of a reprint.

The Illinois State Medical Society Committee on Cancer held several meetings while the survey was being made, and this committee acted in an advisory capacity representing the State Medical Society. Recently throughout the country, the Woman's Field Army of the American Society for the Control of Cancer has been developed. The Committee on Cancer of this Society will act as the State Executive Committee, and direct the activities of the Woman's Field Army. The primary aim of this "Army" is to aid in the education of the laity concerning cancer. It is their chief desire to see that the entire population fully understands the facts necessary to control cancer.

Complete information concerning the work has been sent to each county medical society in Illinois from the Secretary's office at the direction of the Cancer Committee and with the consent of the Council. The state Commander for Illinois of the Woman's Field Army is the wife of a member of this Society, and she will give a short address before this House of Delegates.

The Legislative Committee has been unusually busy during the past twelve months on account of the fact that during the year 1936 several special sessions of the Illinois Legislature were held, and it was necessary for the Committee to carefully review every bill which was presented at these several sessions. The regular legislative session, the Sixtieth General Assembly, was opened in January and is still in session. Many bills have been introduced during this regular session which, if passed, would be inimical to the best health interests of the people of Illinois, and many legislative bulletins have been sent out from the office of the chairman of the Legislative Committee to all county medical societies and to many "key men" in various parts of the state. It is hoped that each of those receiving the bulletins have contacted their legislators when requested to do so.

The Educational Committee has continued the many activities which have been in operation for many years, and has also had a inumber of new duties as a result of the operation of the Social Security Act. One of these has been the arranging of "refresher courses" in Pediatrics and Obstetrics which has permitted many county medical societies to receive the benefit of recent developments in these specialties at home. Similar courses in Syphilology are being arranged which will be given under the supervision of the Educational and Scientific Service Committees.

We would respectfully call your attention to the interesting reports which have been prepared by the various Committees of the Illinois State Medical Society. It is our opinion that these reports showing the many activities of the Illinois State Medical Society should be considered more in detail at our County Society meetings following the meeting of this House of Delegates. With the present system of referring reports to reference commitees, a beter knowledge of the work of this Society is made available. Comments of the reference committees will be a part of the printed transactions of the House of Delegates which will appear in the July issue of the Illinois Medical Journal.

The Council. During the past twelve months, the Council has held eight meetings, one each day of the 1936 annual meeting, one in June, September, January, February and March. One of these was a special meeting called to consider a matter which will be presented to this House of Delegates by Dr. John R. Neal, chairman of the Committee on Indigent Care, as it pertains to a program for medical care to clients of the Federal Rural Rehabilitation Administration.

All Council meetings have been well attended, and it is on rare occasions that a single member is absent, and then only for a reason beyond the control of the member himself. All Council Committees have functioned properly for the best interests of this Society. Many important matters have been presented before the Council during the past year, and each of them has received the most careful consideration and has been acted upon after all available information on the subject has been procured.

The Component County Medical Societies. There are 90 component county medical societies in Illinois at this time. There are but few of these which do not have regular meetings and the interest in the society work has been maintained even in those counties with a very small membership. We again desire to call your attention to the fact that many of the best medical meetings held in Illinois have been in small counties with a total membership of from five to fifteen members. During the past year your Secretary has visited many of these Societies in all parts of the State, and we are thoroughly convinced once more that the interest in scientific and economic meetings in Illinois has not waned.

Ten Southern Illinois Counties were inundated during the recent Ohio River flood, and the services of all physicians in this area and in a number of surrounding counties were needed to care for the unusual number of refugees, but without complaints and with no thought of remuneration, these loyal physicians continued their work day and night. Many stories of unusual bravery have been recorded, but most of the physicians of the stricken area were very reluctant to tell the stories which most of them could have told relative to their personal experiences.

We were asked to send letters to the physicians of these counties urging them to relate some of their unusual experiences so that this information could be recorded among the archives of this Society, but the majority of them preferred to remain silent. We heard of a physician who attended a woman in confinement, going on a horse which had to swim five miles in the back waters to get to the patient; many others took long trips in row boats to visit patients daily during the high water, but none of them registered any complaints. When they were asked repeatedly if they needed assistance from physicians in other parts of the state, they invariably insisted that they were able to give all necessary medical care themselves.

Your Secretary believes that this House of Delegates should present a resolution which, if acted upon favorably, should be sent to the Governor of Illinois and

the members of the Legislature for their information. In times of disaster when thousands of our citizens are threatened with disease, the Director of the State Department of Public Health, we believe, should be in command of all service directed toward the prevention and treatment of disease. Such a procedure would forever do away with the confusion which invariably arises when a number of organizations attempted to assume control of these facilities. We respectfully suggest that this matter receive the proper consideration from the Reference Committee, and that in their consideration of same, some of the physicians living along the Ohio River in Southern Illinois should be asked to discuss the proposal.

The Secretary's Office. During the past year a great deal of time has been utilized to improve the records as requested a year ago by the House of Delegates, and directed subsequently by the Council. With the cooperation of the component society secretaries, a great deal of information concerning individual members has been received, and lists of non-members, both eligible and non-eligible, have been received and filed. All records have been placed in fire proof steel cabinets to preserve them for future generations in the Society.

Many individual services have been rendered upon receipt of a request for same from the county societies. The personnel of the Secretary's office is always anxious to cooperate in every way possible with all county medical societies, and with individual members requesting information or assistance of any kind.

A letter was received recently from Dr. Carl E. Black, a past president of this society, giving the information that he has nearly 150 cuts of most of the early past presidents and prominent workers of the Illinois State Medical Society, and he is willing to give these to the Society provided a place for their safe-keeping is arranged.

It is quite probable that many of these represent the only available cuts of these medical pioneers, and it is the opinion of your Secretary that the generous offer of Dr. Black should be accepted and that the cuts be kept in fireproof vaults in either the office of the Secretary or the Editor. The Morgan County Medical Society honored Dr. Black on April 29, 1937, at which time he completed 50 years of medical practice. Approximately 250 were present to participate in the honoring of a man who has aided materially in the upbuilding of this society.

The Annual Meeting. The Peoria City Medical Society has done everything possible to aid in making this 1937 annual meeting a most successful one. The committees have been working diligently for months, and although it is becoming more difficult each year to arrange for the annual meeting so that all meetings may be held under one roof, and to find places for so many exhibits, the Peoria Committees do not need to apologize for the arrangements for the Annual Meeting of 1937.

The Committee on Scientific Exhibits once more has arranged an excellent display of recent advances in progress along all medical and surgical lines. One year ago the Society developed a plan to give suitable awards for the best exhibits of the three classes designated by them. This procedure has been approved for this and succeeding meetings, and is entirely proper when we consider the time and money which is required to develop exhibits of this quality.

We were compelled to limit the technical exhibits to 31 this year on account of the many scientific exhibits which have been developed. It would have been easy to sell many more exhibit spaces if sufficient room had been available. The technical exhibits represent the efforts of manufacturers of various products of interest to physicians to keep up with medical progress, and we would urge each physician attending this meeting to spend some time among these elaborate displays.

SUMMARY

Another year of progress in the life of the Illinois State Medical Society can be recorded. All physicians of Illinois are interested in the many economic problems before us and each is willing to do his part in an effort to maintain medical freedom in the future.

It is the opinion of your Secretary that we should continue the many activities of this Society and if it seems advisable, increase them.

The Society has had a substantial increase in the membership roll during the past year, and the efforts of all county medical societies should not cease until all eligible physicians in the counties are enrolled on the membership list. We firmly believe that a membership committee in each society composed of members who will attempt in every way possible to bring in the eligible non-members, is the proper method of procedure to increase the membership during the next year.

We desire to pay our respects to the memory of those physicians who have been active in the work of their County and State Medical Societies over a period of years who have been taken by the Grim Reaper during the past year.

Although time will not permit us to mention each of these fine men by name, they have been active in all parts of Illinois, a number of them were formerly Secretaries of component Societies, and also were members of important committees, invariably working for the best interests of organized medicine.

Dr. Wm. E. Shastid, of Pittsfield, was for many years Secretary of his County Medical Society and at one time was a Vice President of this Society. Dr. R. J. Coultas who passed on to his eternal reward recently, was an alternate delegate to the American Medical Association at the time of his death. The lives of these grand men in Medicine were dedicated to service and their memories will be long respected for the fine work they have done.

We desire once more to thank the component society Secretaries for the splendid cooperation received during the past year, and we again wish to emphasize the statement previously made that the Illinois State Medical Society has the most efficient group of component Society Secretaries to be found anywhere.

MEMBERSHIP DATA

Members Reported in Good Standing on May 1, 1936.....7,081

Dropped During the Year:

By Death	162
By Removal or Resignation	70
By Expulsion	0
For Non-Payment of Dues	164
	396

Added During the Year:

Reinstatements	71
New Members	600
	671

Members Carried on April 30, 1937	7,356
Net Gain	275

FINANCIAL REPORT OF THE SECRETARY

Receipts from County Medical Societies

Adams	$ 35.00	Livingston	96.00
Alexander	85.00	Logan	181.00
Bond	55.00	McDonough	190.00
Boone	65.00	McHenry	140.00
Bureau	225.00	McLean	462.00
Carroll	95.00	Macon	128.00
Cass	90.00	Macoupin	220.00
Champaign	195.00	Madison	412.50
Chicago Medical Society	21,218.00	Marion	115.00
		Massac	50.00
Christian	120.00	Mason	94.00
Crawford	135.00	Menard	62.00
Clark	80.00	Mercer	110.00
Clay	70.00	Monroe	40.00
Clinton	37.00	Montgomery	162.00
Coles-Cumberland	210.00	Moultrie	5.00
DeKalb	140.00	Morgan	155.00
DeWit	70.00	Ogle	105.00
Douglas	195.00	Peoria	970.00
Du Page	355.00	Perry	75.00
Edgar	115.00	Piatt	65.00
Edwards	25.00	Pike	60.00
Effingham	220.00	Pulaski	40.00
Fayette	82.00	Randolph	100.00
Ford	115.00	Richland	
Franklin	65.00	Rock Island	430.00
Fulton	220.00	St. Clair	590.00
Gallatin	20.00	Sangamon	617.00
Greene	75.00	Saline	110.00
Hancock	105.00	Shelby	75.00
Hardin	15.00	Schuyler	25.00
Henry	190.00	Stephenson	50.00
Henderson	20.00	Tazewell	130.00
Iroquois	90.00	Union	80.00
Jackson	177.00	Vermilion	536.00
Jasper		Wabash	50.00
Jefferson-Hamilton	150.00	Warren	143.00
Jersey	25.00	Wayne	72.00
JoDavies	25.00	Washington	60.00
Johnson	25.00	White	55.00
Kane	150.00	Whiteside	162.00
Kankakee	265.00	Will-Grundy	260.00
Knox	210.00	Winnebago	655.00
Lake	370.00	Woodford	102.00
LaSalle	120.00	Williamson	
Lawrence	150.00		
Lee	171.00		
		Total	$34,909.50

Subscriptions	$ 205.00	Journal	17,000.00
Exhibits	2,537.50	Bonds, Called	2,095.00
Interest, Treas. Acct.	50.00	Medical History	5.00
Interest, Bonds	2,594.45		
		Total Receipts	$59,396.45

RECEIPTS AND PAYMENTS

May 1, 1936 *to April* 30, 1937

Receipts

County Societies		$ 34,909.50
Exhibits		2,537.50
Subscriptions		205.00
Bonds Called		2,095.00
Interest—		
Treasurer's Account		50.00
Bonds		2,594.45
Journal Advertising		17,000.00
Medical History		5.00
Total Receipts		$ 59,396.45

Distribution of Receipts

General Fund	$ 21,592.30	
Medico-Legal Fund	8,380.83	
Legislative Fund	5,587.22	
Journal Fund	23,836.10	
Total Distribution		59,396.45
Cash Balance, May 1, 1936		43,663.02
Total		$103,059.47

Payments

General Fund	$ 27,442.96	
Medico-Legal Fund	8,701.00	
Legislative Fund	4,510.61	
Journal Fund	19,327.83	
Total Payments		59,982.40
Cash Balance, April 30, 1937		43,077.07
Total		$103,059.47

Cash Balances April 30, 1937

General Fund	11,528.96
Medico-Legal Fund	8,991.87
Legislative Fund	12,824.72
Journal Fund	9,731.52
Total Cash Balance	$ 43,077.07

Respectfully submitted,
Harold M. Camp, M. D., *Secretary.*

FRED N. SETTERDAHL
PUBLIC ACCOUNTANT
224 Robinson Bldg.
ROCK ISLAND, ILLINOIS
May 4, 1937

To the Members of the House of Delegates:
Illinois State Medical Society,

CERTIFICATE OF AUDIT

I have audited the following accounts of your Society for the year ended April 30, 1937.

Secretary's Accounts—Dr. H. M. Camp, Secretary.
Journal Accounts—Dr. C. J. Whalen, Editor.
Educational Committee—Miss Jean McArthur, Secretary.
Treasurer's Accounts—Dr. A. J. Markley, Treasurer.

The Treasurer's accounts consist of tbe Bank accounts which reconcile with tbe Secretary's accounts.

The Secretary receives all membership dues from County Societies, collects Exhibit rentals, Subscription to Journal, etc. Duplicate receipts to County Societies are issued. The amounts credited to tbe various County Societies were verified and compared with the Secretary's report as published.

Orders are drawn by the Secretary for payments made which are suppoted by approved vouchers, invoices, etc.

The Educational Committee accounts consist of receipts from appropriations made from the General Fund, and payments made by checks supported by approved invoices, etc. Separate bank account is kept for this fund.

Journal accounts consist of collections made by the Editor for Journal advertising, payments made by the Editor for commissions in securing advertising and postage. All other

payments are made from the Secretary's office. The balance of funds from the Editor's account is transferred to the Secretary's accounts which are credited to the Journal Fund.

Interest has been received regularly from the Investment Fund Bonds with one exception during the past year. The Interest received from Bonds and Bank Saving Certificate amounted to $2,644.45. Bonds were called during the year to the amount of $2,000.00 on which a premium was paid of $95.00.

All Funds are deposited in the name of the Society and Bonds are held in Trust by the State Bank and Trust Company, Evanston, Illinois. All Cash accounts were verified with depository Banks and found to agree.

Secretary's Accounts: General Fund, Medico-Legal Fund, Legislative Fund and Journal Fund accounts are on deposit in the State Bank and Trust Company, Evanston, Illinois, and the National Bank of Monmouth, Monmouth, Illinois.

The Educational Committee Funds and the Journal Funds accounts of the Editor are on deposit with the First National Bank, Chicago, Illinois.

The Payments have exceeded the Receipts the past years which is accounted for in additional Medico-Legal and Legislative expenses; also the decrease in membership dues.

The records have been well kept and in my opinion my detailed report furnished your Council represents the true transactions for the year.

Respectfully,
Fred N. Setterdahl, *Public Accountant.*

REPORT OF THE TREASURER

Year Ended April 30, 1937

To the Members of the House of Delegates:

Your Treasurer wishes to make the following report:

Receipts		
From Secretary	$ 37,657.00	
From Editor	17,000.00	
Interest on Deposits	50.00	
Interest on Bonds	2,594.45	
Sale of Bonds (Called)	2,000.00	
Bond Premium	95.00	
Total Receipts	$ 59,396.45	
Balance May 1, 1936	43,663.02	
Total		$103,059.47
Payments		
General Fund	$ 27,442.96	
Medico-Legal Fund	8,701.00	
Legislative Fund	4,510.61	
Journal Fund	19,327.83	
Total Payments	$ 59,982.40	
Balance April 30,1937	43,077.07	
Total		$103,059.47

All Funds are deposited in the name of the Illinois State Medical Society.

Deposited with the State Bank and Trust Company, of Evanston, Illinois	$ 24,302.02
Desposited with the National Bank of Monmouth, of Monmouth, Illinos	19,676.16
Checks on Hand, returned from Closed Banks	35.00
Total	$ 44,013.18
Less Checks Outstanding	936.11
Net Balance as above	$ 43,077.07
There is held in Trust, at the State Bank and Trust Company, Evanston, Illinois—Bonds, par value	64,000.00
Total Cash and Bonds	$107,077.07

Respectfully submitted,
A. J. Markley, M. D., *Treasurer.*

REPORT OF THE CHAIRMAN OF THE COUNCIL

To the Members of the House of Delegates:

The activities of the Council must of necessity, center about its various committees. Weak committees make for a weak Council, while strong committees make for a strong Council. In the last year we have enjoyed the cooperation of strong, active groups. With but one or two exceptions, they have functioned with extraordinary zeal and efficiency.

Most outstanding was the work of the Medical Economics and the Legislative Committees. In the opinion of the Chairman, one or two of the regular committees should be abolished. This is especially true of the Public Relations Committee—not because of the inactivity of the personnel, but because various other groups have so overlapped the functions of this particular one that much duplication of effort was unavoidable.

Outstanding again this year was the work of the Medical Economics Committee under the able leadership of an untiring chairman. In its column in the Journal and in its participation in the Northwest Medical Conference, are reflected the activities of this splendid committee. With the gradual return to better times, the doctor's social and economic problems remain unsolved. The continued study of these problems is necessary.

Able leadership in the Legislative Committee has made it possible for this group to function with the same benefits to the medical profession in Illinois as have crowned its efforts in the past. The medical profession in Illinois should be very grateful for this splendid committee.

The Educational Committee continues to spread the sound gospel of the value of education of the physician and the public. Through its speakers' bureau and its press and radio activities, it has brought to the doctor and the public alike, a better understanding and utilization of medical knowledge.

Medical legal problems have been varied and difficult during the past year. The work of this Committee must go on uninterrupted. It is hoped that the difficult problem which has arisen in the past fortnight may be satisfactorily solved. It is the opinion of your Chairman that a definite stipulation by the House of Delegates as to the amount to be expended for the defense of any one case would be a move welcome to the members of this group.

The remaining committees functioned efficiently, and it is hoped that the labor put forth, especially in the Corporation Practice Committee, may eventually bring fruit.

This report would be incomplete without bringing to your attention the activities of the Director of the State Department of Public Health, Dr. Frank J. Jirka. His reports and fearless efforts in behalf of the doctors of Illinois have been a great inspiration to your Council.

The Editor of the Journal in his editorials, has set

forth the key notes of the practice of medicine, both local and national.

Last and most important must be chronicled the splendid work of the Secretary of the State Society and his small but most efficient staff. His attention to the details of every phase of our activities, his untiring efforts in reminding us of our duties, his keen interest in our problems, has made it possible for your Council to carry on with efficiency and dispatch.

I bespeak for my successor the same cooperation which has been afforded me.

Respectfully submitted,
Philip H. Kreuscher, M. D.,
Chairman of The Council.

REPORT OF COUNCILOR OF FIRST DISTRICT

To the Members of the House of Delegates:

Regular meetings have been held as usual in the Counties in the First District. Members are studying more keenly than ever the problems of social security and state medicine.

I find that there is a tendency for the younger groups to seriously consider Public Health work, as a permanent vocation, the argument being that state medicine will sooner or later be here and that they had better get in on the ground floor. Most of the men are keenly interested in progressive medicine. Scientific programs that have to do with an analysis of the causes and the cures of sickness are always welcomed. Physicians should realize though, that we are all judged by the weakest link in organized medicine, and it is the duty of each and every one to try and see that all members attend medical meetings, and that the recent advances in medicine are brought to the attention of all.

If I were to write a thesis on how to get the individuals interested in scientific medicine and medical organization, it would be on the theme of having each member present a paper of some kind to his local society every year in order to retain his membership. Indeed, I have thought that it might be well to have a license to practice medicine renewed at five year periods. Every five years the physician would be compelled to take an examination, similar to the method they use in the Army and Navy. The practitioner of medicine cannot stand still. He must go forward, or he will go back. Our Medical Societies are organized for the purpose of education and to protect rights of the individual physician. No scientific, active man in the practice of medicine can afford to be outside the circle of organized medicine.

Respectfully submitted,
Edward H. Weld, M. D.,
Councilor First District.

REPORT OF COUNCILOR OF SECOND DISTRICT

To the Members of the House of Delegates:

The Second District is composed of the following counties: Whiteside, Lee, Bureau, Livingston, Woodford, LaSalle, Marshall and Putnam. The last two mentioned counties are small and have few doctors; however most of the doctors are members of societies of adjoining counties. The other counties all have large, well organized societies. Membership has been well maintained and regular meetings have been held throughout the year, in most instances monthly. The scientific programs have been excellent and as a result many physicians attend meetings of their neighboring societies. Many of the programs throughout the district have been furnished through the Educational Committee. Programs on Pediatrics and Obstetrics have been arranged for several counties.

Economic problems throughout the district have not been serious and in all instances have been well handled. The lack of serious problems is no doubt due to the fact that the district is largely agricultural and that in this part of the state the weather last year was relatively kind.

A Woman's Auxiliary has been organized and is active in most counties. Clinics for Indigent Crippled Children are held at several places throughout the district, in some instances sponsored by the local medical society and in others by lay organizations with the approval of the local medical society. Reports indicate that they are all quite satisfactory to both the people whom they serve and to the doctors, and that there are few abuses.

Respectfully submitted,
Edgar C. Cook, M. D.,
Councilor Second District

REPORT OF COUNCILOR OF THIRD DISTRICT

To the Members of the House of Delegates:

The Chicago Medical Society is happy to report a successful membership year. Our roster shows 4,115 members, with 3,626 paid up to date; and we believe that most of the remaining 489 will be in good standing before the end of the year.

One of the largest problems of the year has been the group hospitalization plan of the Chicago Hospital Association, which has already begun operation and the sale of contracts. Several of its officers appeared before the Council of the Chicago Medical Society, and explained at length the purposes and proposed plan of operation, hoping to secure the official endorsement of the Society. They were, however, unable to meet all the requirements as laid down in this House of Delegates at the meeting in Rockford in 1935. Furthermore, they could not see their way clear to enter into any sort of permanent agreement with the profession that the plan would never extend its scope of activities to include medical care in its benefits. It may readily be understood that the Chicago Medical Society could not therefore approve the scheme. Failure to secure our sanction must of necessity hamper the sale of contracts. No attempt has been made as yet to change the set-up so as to conform with the best interests of the future practice of medicine. It is felt that any such hospital insurance schemes in this state should collaborate with the local County Medical So-

cieties, and must meet the simple and reasonable specifications of the 1935 Meeting.

Under the able and cooperative administration of the three major officers, Thomas Foley, George Post and Robert Hayes, the activities of the Chicago Medical Society have broadened and reached a new peak of lay consideration and respect. Civic organizations, and even the local Department of Health, have shown definite signs of recognizing our existence.

The law enforcement agencies of the state have shown little disposition to uphold the legality of the Illinois Medical Practice Act by prosecution of violators. We have not given up hope, however, that a day will come when corporations will not be permitted to practice medicine. The State Society must not drop its fight on corporate practice.

Respectfully submitted,

John S. Nagel, M. D.,
Percy E. Hopkins, M. D.,
L. E. Day, M. D.,
Councilors of the Third District.

REPORT OF COUNCILOR OF FOURTH DISTRICT

The year of 1936-37 has been characterized by a moderate degree of improvement in medical economic conditions throughout the entire Fourth District. Membership in the various County Societies has shown a tendency towards improvement. Nearly all new arrivals are reported as joining the County societies and many former members have been reinstated.

The question of medical economics has been brought before the public and the profession on all possible occasions, the Councilor having addressed several medical societies and very many lay organizations upon this topic. The public has received these messages with a spirit of cooperation and an extreme degree of interest has been evidenced. It is believed that such meetings have accomplished a tremendous amount of good in these communities and it is felt that more such meetings should be held. Some additional speakers have been developed for presentation of topics for the laity and a few more are in the process of being trained.

The component County societies are doing much as they have in the past. Peoria County, the largest society, has regular meetings twice a month, and its membership has stimulated additional scientific interest by Pathologic Conferences held in the various hospitals. This society has also taken a very admirable attitude in the recent city election and it is a pleasure to note that representatives from it are in increasing demand as speakers at various public gatherings. Many other County and City medical organizations could take lessons from the Peoria group in the way matters of public policy are handled.

The Rock Island County Society has held regular meetings and has maintained a definite interest in civic and economic affairs and is the second largest numerically, in this district.

Fulton and McDonough County Societies have held regular meetings and at the present are holding joint meetings in conjunction with the Obstetrical and Pediatric Refresher Courses. Many of the members believe that having joint meetings stimulates both interest and attendance and that the larger number present offers more encouragement to the speaker. At the present time the Refresher Courses seem to be going quite well and are being supported wholeheartedly by the membership.

Hancock County Society has had one meeting devoted to the medical economics and is manifesting much interest in this topic. The Henry County Medical Society has also held regular meetings and its membership appears to be in excellent condition.

Knox County has meetings at regular intervals and has an excellent membership. Warren County has a hundred per cent membership and holds regular monthly meetings. Schuyler County, the biggest little county in the state, has not had its usual big fall meeting, but its membership attends the meetings of all adjoining societies.

The other County Societies in this District have been holding meetings according to their accustomed schedules, some quarterly, others monthly, but their general condition seems to be on a par with the previous years.

Economic conditions throughout the District have been better on the average and no problems of any magnitude have arisen. The Councilor has attended every meeting of the Council and those of the Special Committees to which he has been assigned.

Respectfully submitted,

E. P. Coleman, M. D.,
Councilor Fourth District.

REPORT OF COUNCILOR OF FIFTH DISTRICT

To the Members of the House of Delegates:

In this, the twelfth annual report that your Councilor has made of the Fifth Councilor District, we take heart that much progress has been made. In retrospect over these years, some of the noticeable things are: The steady growth in membership. The smaller per cent of those residing in each county that are non-members. The County Society acts more as coordinate unit. The meetings are more frequent and better attended. The larger societies have kept up their usual activities and the smaller ones have gone beyond any previous efforts.

Menard, the smallest county, has almost doubled its former paid-up membership and they are now holding monthly meetings.

In one of the smaller societies, I visited with the President and President-Elect of the State Auxiliary and organized a county branch.

Four of the first refresher courses in Obstetrics and Pediatrics that have been organized in the downstate, have been in the Fifth Councilor District. Menard and Mason counties have combined for their course, as well as Logan and DeWitt. McLean and Sangamon each have separate courses of lectures. Particularly the smaller counties have had excellent attendance and given hearty approval. One of the weekly lectures at

Springfield was held jointly with the Central Illinois District Medical Society, with an all-day program and good attendance.

Most of the economic problems that have been uppermost in the minds of the medical profession have been discussed in the various counties of the Fifth District. At a District meeting held in Bloomington in September, Dr. Leland appeared by invitation of your Councilor and gave an elucidating talk on Group Hospital Insurance.

Dr. Leland also spoke before the Sangamon County Medical Society, at Springfield, where hospital insurance had reached a favorable consideration, mostly by a lay group. It has not been again favorably mentioned. This has been about the same situation in Bloomington. There is so much adverse information which our people had not considered, that it gave the whole subject an unfavorable outlook. There has been no organized group for hospital insurance in this District.

As a Councilor and chairman of the committee of the Council on legislation, with the seat of all lawmaking and its executive administration at Springfield, we are deeply interested in each session of the legislature as bills are introduced in any way affecting the Medical Practice Act. I believe the Fifth Councilor District has proven itself to be ever on the alert in responding to urgent appeals to keep in touch with their representatives in the legislature and inform them when pernicious legislation threatens.

Sangamon County representatives, in matters medical, have been courteous and respectful to our profession, for which we are duly grateful. The efficiency with which the present Legislative Committee of the Illinois State Medical Society, under the leadership of its present chairman, Dr. John R. Neal, as compared with the older methods, is certainly obvious, and we appreciate this fine quality of efficiency and sound judgment of the one upon whose shoulders this responsibility lies.

It must seem apparent to all of us that we have arrived at a place in the progress of medicine where our perspective discloses problems that are new and apart from what we have before been accustomed. These require more careful consideration to avoid harmful conclusions that may direct our steps into inextricable paths in the present order of living,—a change affecting all the relations of our social order, including the practice of medicine, difficult to evaluate but interesting and challenging.

We have always emphasized to the profession in this district the paramount necessity of organization, particularly the County Medical Society. A man can practice medicine without being a member of a county medical society, but as his life touches his fellow practitioner and his patients, he needs the guidance of many experiences, and the County Medical Society needs his judgment and experiences to aid in rendering to the community and to his patients the best that the heritage of our profession has to give.

We submit the following reports from the County Societies in this District:

County	*Membership.*	*Gain—Loss*		*Meetings Held*	*Average Attendance*
DeWitt	15	1	2	8	11
Logan	29	4	1	6	20
Mason	12	1	1	4	10
McLean	81	8	4	10	45
Menard	8	2	0	3	7
Montgomery	19	0	0	12	18
Sangamon	118	5	2	10	43
Tazewell	20				

(Of the members lost, six were by death.)

Respectfully submitted,

Samuel E. Munson, M. D.
Councilor Fifth District.

REPORT OF COUNCILOR OF SIXTH DISTRICT

To the Members of the House of Delegates:

The Councilor of the Sixth District begs to report conditions in this district much improved over those existing a year ago. A few reports from outlying communities where supervisors and those in charge of relief are slow or not paying medical bills. I have no suggestion to offer these doctors except refusal to continue rendering services. The new program of the Rural Resettlement Administration may offer some slight relief in these cases.

The arrangement between the Adams County Medical Society and the Adams County Board of Supervisors is still working satisfactorily; namely: the physician caring for indigent patients presents his bill in full, allowing a discount of 25% to the County or Township. So far there has been no controversy. The Board is still operating under an agreement made over two years ago, and has not asked for a renewal. A number of counties in the District are endeavoring to make similar arrangements with their supervisors.

The Pike County Medical Society has recently changed its name to the Pike-Calhoun County Medical Society, there being no society in Calhoun County and few doctors.

We have neither seen nor heard of any more attempts at organizing wayside first aid stations. They apparently have died of inanition.

I want to thank the House of Delegates for acting favorably on my suggestion to place the name of Doctor Charles D. Center, (Deceased), in the list of past presidents.

Your Councilor, after a visit to each of the different county societies in the Sixth District is gratified at the outlook for the future. Attendance at meetings is better and more interest is shown by our younger men.

At a recent meeting of the Council held in Chicago, it was decided to make a slight increase in the dues for the coming year. This is necessary because of increased and necessary activities of the society. We are beset on all sides by obnoxious propaganda which it is necessary to fight with counter publicity. I favor a full time publicity man under the direction of the Council.

The most outstanding event of this year in the Sixth District was the meeting of the Mississippi Valley Medical Society, which was well attended. This is a

Fall meeting and serves many of the smaller communities in Southwestern Illinois. The meeting this Fall will be held in Quincy, September 29, 30, October 1.

Respectfully submitted,

Thomas B. Knox, M. D.,
Councilor Sixth District.

REPORT OF COUNCILOR OF SEVENTH DISTRICT

To the Members of the House of Delegates:

The eleven County Societies comprising the Seventh Councilor District, have shown splendid cooperation during the past year, in the care of the indigent, the unemployed, and of those in the low income groups. Many individual members deserve commendation for their untiring efforts in flood relief work in Southern Illinois.

Some societies report the usual number of good meetings. A few of the smaller societies have had no scientific meetings but have availed themselves of the opportunities of intercounty meetings and scientific meetings in the larger centers.

No unusual problems have arisen requiring the special services of the Councilor, and no "Sit Down Strikes" have been reported among the membership. Harmony seems to have prevailed throughout the District.

There has been, however, among certain of the medical men of the District a feeling of unrest, or insecurity, as we face the future of medicine, where the trends are all in the direction of a more centralized Government. With the present definite changes in the social, economic, political, and industrial relationships, to say nothing of the basic principles of our Government, it becomes the duty of the medical profession, individually, and as organized societies, to take an active interest in the programs being promulgated under the operation of the Social Security Act; namely, Maternal and Infant Welfare, Crippled Children, and the Campaign for the Control of Syphilis.

The Director of Public Health, Dr. Frank J. Jirka, and his staff are to be commended for the efforts they are making to keep all medical problems of the State of Illinois in the hands of the medical profession where it rightfully belongs. The best interests of the profession will be served only by the cooperation of organized medicine.

Respectfully submitted,

I. H. Neece, M. D.,
Councilor Seventh District.

REPORT OF COUNCILOR OF EIGHTH DISTRICT

To the Members of the House of Delegates:

The past year has been a most successful year in the majority of the County Medical Societies in the Eighth District. Agriculture and industry, in general, are the best they have been since the beginning of the depression and as a result, the medical profession is in a much better state of mind. Most hospitals have had increased bed occupancy—several being filed to capacity at times, while some hospitals that found it necessary to close, have been reopened.

The membership in the majority of the County Medical Societies is the highest it has ever been and with very few delinquent members. Champaign, Douglas, Coles-Cumberland, Crawford, Lawrence and Vermilion County Medical Societies hold regular monthly meetings, usually having outstanding men from other localities furnishing the programs. Clark, Jasper and Edgar Counties maintain their medical organization but do not hold regular monthly meetings. Their members take advantage of the scientific programs held in adjoining counties. Richland County has not kept up a County Medical Society organization.

The members of the profession in the Eighth District are showing much interest and concern over the problems that confront organized medicine. There has been considerable discussion about the Social Security Act as it effects the practice of medicine. There is a general expression of approval and evidence of cooperation with the program that is being presented for the Control of Syphilis but quite a number have expressed opposition to "clinics." Many of the counties are arranging programs for Maternal and Child Welfare or the Refresher Courses in Obstetrics and Pediatrics. The Crippled Children's Clinic, that is being planned through the Social Security Act, is receiving consideration in some of the counties. The medical care of the Resettlement Clients is being discussed but no definite plan has been adopted or will be, until some definite information comes from the State organization. Group Hospitalization Plan is being considered in some communities.

The plan of holding two Councilor meetings each year—one for the counties in the south part of the District in the fall; and one for the counties in the north part of the District in the spring was carried on again this year. The object of these meetings is to bring direct information, concerning organized medicine, to the members from officers of the State organization and authoritative members of the medical profession.

The meeting in the south part of the District was held at Casey, Illinois, October 8, 1936 with Clark County Medical Society acting as host. A very interesting and instructive program was presented by Dr. John R. Neal, chairman of the Legislative Committee, who spoke on "The Regulation of the Physician by Law," and Dr. Philip H. Kreuscher, Chairman of the Council, speaking on "Surgical Treatment of Arthritis."

The meeting in the north part of the District was held at Champaign, Illinois, April 7, 1937, sponsored by the Champaign County Medical Society. This meeting was held at the Champaign Country Club and about one hundred and fifty doctors were present with a number of doctors from Macon, DeWitt and Ford counties. The presence of Dr. I. H. Neece, Councilor of the Seventh District and Dr. J. S. Templeton, Councilor of the Tenth District was appreciated. We were honored by having the President of the University of Illinois as one of our guest speakers.

The following program was very informative and received much favorable comment:

"Illinois State Department of Public Health and the Social Security Act"—Dr. Frank J. Jirka, Director, Department of Public Health.

"The Social Security Act and the Medical Profession."—Dr. Harold M. Camp, Secretary, Illinois State Medical Society.

"The State University and Professional Education."—Dr. Arthur C. Willard, President, University of Illinois.

Your Councilor has attended all the regular and special meetings of the Council during the past year as well as some called meetings of the Committee on Medical Economics of which he is a member.

Respectfully submitted,

C. E. Wilkinson, M. D.,

Councilor Eighth District.

REPORT OF COUNCILOR OF NINTH DISTRICT

To the Members of the House of Delegates:

The Ninth Councilor District is composed of fourteen counties in the South and East part of the State. There are thirteen medical societies in this district; two counties being combined as one.

The Jefferson-Hamilton, Franklin, Williamson, Saline and Wayne Counties have very active societies. They have regular meetings that are well attended and scientific programs that will compare very favorably with those of any society in the state. The remaining societies in this district have small memberships and have meetings occasionally. However, many of the physicians from these smaller counties are regular attendants at the meetings held in the adjoining counties, many of them driving forty to sixty miles.

Much of the territory in the counties bordering on the Ohio River, namely, Gallatin, Saline, Hardin, Pope and Massac Counties, were inundated during the high waters in January and February. Many refugees from the low land in this district were placed in temporary camps in the nearby hills, while others were sent to more fortunate cities and given temporary homes in the churches and other public buildings. The physicians in these counties devoted much time and made many sacrifices to care for these flood refugees. Practically all these unfortunate people were immunized against small pox and typhoid. All the children, in addition to this, were immunized against diphtheria.

The physicians in these counties deserve a great deal of credit for their energy, devotion and skill in handling these refugees. No epidemics of any kind occurred, notwithstanding the fact that thousands of them were hastily thrown together in these emergency camps.

The physicians in the Ninth District are well organized, cooperative and are constantly striving to keep abreast with the progress in medicine and surgery.

Respectfully submitted,

Andy Hall, M. D.,

Councilor Ninth District.

REPORT OF COUNCILOR OF TENTH DISTRICT

To the Members of the House of Delegates:

This is the first of my eleven years as Councilor that I have been favored by every County in the Tenth District with a prompt reply when I asked them for a report on conditions in their County.

This is evidence that the Counties are better organized at the present time than ever before. It may be that the present unrest and clouded outlook for the profession is some cause for more intense interest than usual.

Every County in the District has held meetings during the past year, and while there has not been any unusual growth of membership, there is evidence that the members of the profession are uniting with their County Societies and paying their dues more promptly.

Our District was affected by the floods of early spring and our profession responded nobly to the call for help. At least five counties were more or less affected by the flood and relief work. We are glad to state that it was but a short time after the waters receded that almost all medical men were in their usual places of work and looked after the returned refugees as well as their regular practice. There was no complaint, as far as I know, of the Medical Profession not doing their whole duty. There were compliments bestowed where compliments were deserved, and though it was a trying time, the profession came out of the ordeal with honor to themselves.

Three of the Tenth District Counties are a part of the Five County Organization which holds a meeting every week. These meetings are both educational and social. University men usually are the speakers and give us lectures equal to those of post-graduate schools. We were favored during the year by a number of good lecturers from Chicago, several of whom came down to the annual Southern Illinois Meeting held in our District.

It is a pleasure to submit the following report by Counties.

Perry County. The Perry County Medical Society had nine meetings during the past year, six of which were arranged with programs and guest speakers from medical centers. The program meetings were preceded by a dinner after which the program was presented. The speakers were doctors connected with the medical schools who were accustomed to lecturing before medical men on their favored topics. The talks were illustrated with diagrams, pictures, x-ray films, lantern slides, and moving pictures as each speaker would choose.

There are fifteen members who belong to the County Society, and one honorary member, making sixteen in all.

There was one new member during the past year—Dr. Edward Lathrop Hill, DuQuoin, and one transfer—Dr. Perry Anderson, DuQuoin, to Rockford, Illinois.

There have been no deaths during the past year.

Washington County. Washington County now has twelve members, a gain of two over last year. Dues all paid.

No deaths during the year.

Had twelve meetings.

There are still five doctors in Washington County who are not members. It is hoped they will be before another report is made from the District.

Randolph County. Randolph County Medical Society had a gain of two members last year.

They held six meetings since the first of last August.

The County Society is looking up and expecting a successful year during 1937.

Union County. Since the previous report, a medical meeting has been held each month with good attendance, except during the summer months and during the flood period.

New members during the past year were Dr. D. T. Cole, Anna, Ill., and Dr. M. E. Cosand, Dongola, Ill.

At the present time we have twenty members in our local society.

All the physicians in active practice are members.

There were no deaths during the past year.

Last May a Psychiatric Clinic was held at the Anna State Hospital. Physicians from all sections of Southern Illinois attended.

Monroe County. During the year 1936 the Monroe County Medical Society held ten meetings, one a month except during the hot summer months.

There have been no deaths among the members in this county.

Altogether, there are eleven doctors in this country, eight of whom are members in good standing in the State Medical Society. There has neither been a gain nor a loss in membership during the past year.

Jackson County. The Jackson County report shows a gain of two members.

Ten meetings were held and the average attendance per meeting was twenty.

They have thirty members in good standing and only a few practicing in the County do not belong to the State Society.

Alexander County. Alexander County reports seventeen members, a gain of one member over last year.

Two members were lost by death—Dr. R. E. Barrows and Dr. O. M. Dickerson.

They have three new members, W. A. Felts, H. A. Helig, and Fay S. Komer, the latter having recently moved into Cairo. This makes a 100% membership of eligible physicians in Alexander County.

Last year they held quarterly meetings with guest speakers which were well attended. A number of business meetings were held also.

St. Clair County. The St. Clair County Medical Society reports 121 members.

The number of deaths during the year were 6—Drs. George Oscar Hulick, Daniel Wesley LeGrand, Finis Coleman Little, Louis G. Harney, Arthur Charles Echternacht, Charles L. Moeller, non-member.

The number of meetings held were 11, usually having guest speakers.

Pulaski County. Pulaski County has a 100% membership consisting of six members.

They held two meetings in the County, during the last year, and their members attended the Alexander County meetings.

Respectfully submitted,
J. S. Templeton, M. D.,
Councilor Tenth District.

REPORT OF COUNCILOR OR ELEVENTH DISTRICT

To the Members of the House of Delegates:

The County Societies comprising the Eleventh District have had a most successful year. Throughout the district, definite progress has been made in arousing the interest and cooperation of the medical profession. Membership is at a high level and regular meetings with increased attendance has prevailed throughout the district. A detailed report of the membership, meetings and attendance will be included in this report and can be consulted for definite information, if such is desired.

The cooperation between those physicians engaged in the general practice of medicine and those working in state institutions has been most pleasant during the past year. Both groups seem to realize that they have mutual problems and that attendance with their fellow practitioners at meetings and entering into the discussion of problems outside their own field is mutually advantageous. In counties such as Kankakee, with two hospitals for the insane, cooperation between the two groups has resulted in most interesting and educational meetings.

The Councilor has attended every meeting of the Council, both regular and special, as well as the meeting of the Committees of which he is a member. Naturally he has given special time to the Committee on Medical Economics. This work calls for considerable travel around the state as well as the district, addressing both the medical profession and lay audiences on his pet subject, medical economics. This has taken considerable of his time and as a result, he has not visited the component County Societies as often as he desired. However, in view of the excellent condition of the component societies, he feels that they have prospered just as well as though he had visited them frequently and repeatedly. No particular problems have arisen in this district during the past year. All of the County Societies are in excellent financial condition. They are showing an interest in the general campaign of education of the public in the problem of the dangers confronting the medical profession and the laity.

In reply to a questionnaire sent them the County Societies of this district make the following report of their condition:

DuPage County—Total membership 64.
Delinquent 18—Most will pay soon.
New members in 1936—4.
Members lost 1936—4.
Meetings held 10. Average attendance 30.
Special features—Ladies' Night. Picnic.

Iroquois County—Total membership 25.
Delinquent 0.
New members 1936—3.
Members lost 1936—0.
Meetings held 7. Average attendance 18.
Special features, none.

Kankakee County—Total membership 57.
Delinquent 0.
New members 1936—11.
Members lost 1936—2.
Meetings held 9. Average attendance 30.
Special features—Cooperation with state institutions.

Will-Grundy—Total membership 107.
Delinquent 24.
New members 1936—1.
Members lost 1936—2.
Meetings held weekly with average attendance of 35.
Special features—Annual Spring and Pre-School Roundup.

Ford County—Has practically every eligible physician in its membership.
Holds meetings at irregular intervals. All meetings well attended.
Total membership is small as this county is completely agricultural with no town of any size.

From the above you can see that the county societies are in a healthy condition and cooperating with the State Medical Society in good shape.

The Councilor wishes to thank the officers of the component societies for their cooperation the past year.

Respectfully submitted.
E. S. Hamilton, M. D.,
Councilor Eleventh District.

REPORTS OF COUNCILORS AT LARGE

To the Members of the House of Delegates:

Two events have occurred in the Third District which are brought to the attention of the House.

The first is the effort of an Insurance Company to secure the approval of the Chicago Medical Society for Group Hospitalization. The proposition was under consideration by a committee of this Society for several months. The project was carefully studied, and a majority report of the committee advised its approval, but it was defeated by an overwhelming vote. A minority of the committee regarded the proposition as a matter in which the physician's interest was paramount, not only as a means of ethical protection, but also in a material way to prevent the almost inevitable tendency toward the practice of medicine by the adhering hospitals. The minority, therefore, offered a report in which it was asked that, owing to the high interest of the medical corps, it would only be fair to give the doctors 51% of the Board of Directors in place of the two offered. This minority report was supported practically by the entire Council.

The feeling in the Chicago Medical Society is definitely adverse to the Group Hospitalization plan as proposed.

The second event that claims our attention in the Third District, is the highly meritorious study of dispensary abuses which was carried out by the Committee of Economics of which Dr. Kretschmer is chairman.

With an allowance of $4,000 from the Board of Trustees, a careful survey was made of the principal dispensaries, and a complete report was offered to the Council a year ago. This year Dr. Kretschmer reports on the results of the investigation by his committee, and submits a group statistics to support his statements.

The report shows:

(a) A remarkable reduction in the number of patients cared for by these dispensaries on account of better supervision in eligibility.

(b) An increased percentage of patients reporting at the dispensaries who were referred back to their doctors because they were over budget.

(c) That physicians have referred an astonishing number of patients to dispensaries who are not eligible for free treatment on the basis of the plan outlined.

(d) The splendid report and work of the Social Service Departments of some of the reporting dispensaries on the follow-up care is commended.

And the Committee recommends:

1. That there be organized a Hospital and Clinic Committee whose business shall be to maintain close contact with all Hospitals and Out-Patient Departments of the City and to make recommendations from time to time concerning the conduct of these institutions.

2. That there be appointed a qualified, accredited and trained medical worker who shall act as the permanent Secretary of the Hospital and Clinical Committee, and perform such duties relating to the medical, social, and economic phases of the Hospital and Clinic service as the Committee may determine, with the special idea of co-ordinating these aspects of clinic work from a medical standpoint.

3. That definite standards of admission from an economic standpoint be determined and distributed for universal application in all Clinics in this community.

This improvement in the management of dispensary abuse has gone on voluntarily by the dispensaries without the cooperation of the Chicago Medical Society, and in spite of the fact that the Society has taken no definite position in approving a yardstick by which dispensary abuse can be measured.

The Committee believes that in the vast metropolitan area of Chicago any scientific attempt to handle this matter, and reflect proper credit for leadership by the medical profession could only be brought about by the use of a yardstick properly devised.

Respectfully submitted,
Charles B. Reed, M. D.,
Councilor at Large.

To the Members of the House of Delegates:

As the time draws near for me to end my service as Councilor at Large, I am feeling the loss of my association with the members of the Council.

I have enjoyed the privilege of working with this group of unselfish men who, year after year, serve the profession with no thought of themselves.

To the members of the House of Delegates I want

to leave this message. While it is true that you are the supreme body and rightly so, you should always weigh carefully any recommendation coming from the Council, because they are the men who see first the needs and give time to study what should be done and how to do it. I would recommend to the House to never refuse the Council's advice without first giving time enough for thoughtful consideration.

As I make my last report to you as a member of the Council and look back over the year just gone and then turn and look out into the year ahead, I feel that it is more important to report what should be done in the year to come than to report to you what I have done in the year past. What I have done in the year past, be it worth much or little, was the best I had to give and is done; but as I look forward and see the needs and the little to do with, I am constrained to ask of you to give more of your time to your county and state societies and a share to your American Medical Association. All three need more active workers.

Your state society needs more money to do the work needed. It is not fair for those who do the work and are compelled to be away from their offices so much of the time in order to keep within the limit of the money allotted for the expenses of the state society. If it were not for these few giving so freely, the membership dues would fall far short. As it is there is much needed work that must be left undone because of the lack of funds to carry on.

It is true that organized medicine is becoming more expensive to carry and is going to continue to mount higher and higher due to the fact that it is taking on more and more work to meet the demands of its membership. Then there are those who feel that we should meet these outside forces by hiring skilled propagandists. I am not convinced of this need, but I am convinced that we need more money to use in sending out more of our members to carry on this fight. Every county society should have one or more members who are trained in what is needed to be done in order that every lay organization in the county could be told what organized medicine stands for.

Because the headlines are not "Regiment the Doctor," is no reason to believe the fight is won. It is far from being won. Other things of more acute nature have demanded attention and when this is over we again will be bombarded with the big guns. Now is the time for us to strengthen our position in order to withstand the renewed attack.

It is evident that the man on the legislative sector is going to need help or ground is going to be lost.

A new work is already under way in your Economic Committee that is going to be an added expense in men and money. Inter-state relationship must be a part of our program. Our secretary's office is already flooded with work and each day brings added requests from the county societies. If this office is to meet our needs, added help must be supplied. All these must be met or soon we will hear the cry for lay helpers; but then we will have opened our gates for the social worker to enter and take control of our affairs. Then in my opinion we will be ready to hoist the white flag.

As I close my report to you and bid goodbye to the members of the Council, I want to express my appreciation for the privilege that has been mine of having served with this body during these three years. I ask that you find another place for me to work and serve.

If you cannot agree with me as to our needs, permit me to request you to look carefully over our fields of need and care for them as you see fit.

Respectfully submitted,
Charles S. Skaggs, M. D.,
Councilor at Large.

(Editor's Note: Dr. Skaggs was under the impression that his term as Councilor-at-Large expired in 1937, which explains the wording of his report. He has one more year to serve.)

To the Members of the House of Delegates:

The activities of this councilor-at-large can best be expressed in terms of effort expended in visiting various county societies and the meetings of Councilor Districts. Time and effort utilized in the work as Chairman of the Council has somewhat limited the activities of the councilor-at-large.

However, we have gained considerable pleasure and satisfaction in having been able to serve several county societies in the conduct of Handicapped Children's Clinics. This most worthy cause should not be neglected.

I am convinced that there are many activities in which the councilor-at-large may render valuable service.

Respectfully submitted,
Philip H. Kreuscher, M. D.,
Councilor at Large.

REPORT OF PUBLIC RELATIONS COMMITTEE

To the Members of the House of Delegates:

The Public Relations Committee, in submitting this annual report, again wishes to call to the attention of the members of the Illinois State Medical Society the fact that they are always anxious to be of service when controversies arise in dealings with insurance companies.

During the past year this committee has aided a number of members in settling these disputes and at the same time, it is our opinion that the insurance companies today are respecting county medical fee schedules more than in the past.

The Illinois Industrial Commission does not have a fee schedule which governs charges for medical and surgical care of injured employees, and it has repeatedly been the decision of the Courts that the prevailing charge for services in the respective communities shall be accepted as the proper rate for services in cases which go to court.

With three years' experience behind us in these relations with insurance companies, it is our opinion that most of the controversies which have arisen between physicians and insurance companies have developed through a decision of an office assistant or

claim adjuster, who believes that he caan prove his value to the company through a demand for a cut in the physician's bill. Many times when the matter is straightened out promptly, the bill is allowed in full.

We are happy to report that a number of the better type insurance companies have informed us that it is their desire to see that injured employees receive adequate care when injured or when ill as the result of employment, and that the regular free schedule for the respective communities shall prevail, and should not be contested.

We respectfully urge each member of this Society to become familiar with the new Illinois Occupational Disease Act as it is entirely different from the old State Compensation Law affecting the medical care of injured employees.

Once more we desire to thank Mr. Edward R. Rawlins, General Counsel for the Illinois State Medical Society, who has permitted the use of his name on our official stationery, and it is our opinion that this has been of material assistance to us in our dealings with the insurance companies which are aware of the high standing in the legal profession of this attorney.

The Committee on Public Relations is always anxious to be of service to the members of the Illinois State Medical Society.

Respectfully submitted,
Fred H. Muller, M. D.
H. W. Woodruff, M. D.,
W. S. Bougher, M. D.,
Chairmen,
Public Relations Committee.

REPORT OF MEDICO-LEGAL COMMITTEE

To the Members of the House of Delegates:

During the year from May 1, 1936, to May 1, 1937, the Committee reports that there have been twenty-one (21) new suits started and thirty-two (32) suits disposed of. This compares with twenty-seven (27) new suits started between May 1, 1935, and May 1, 1936, with a disposal of twenty-nine (29) cases during that period.

Of the twenty-one (21) new suits starting during the past year, five (5) cases have come from down state.

Sixteen (16) claims have been reported during the year, nine (9) from Cook County and seven (7) from down state.

At the present time there are eleven (11) less cases pending than there were a year ago.

During the past year of the twenty-one (21) cases reported, seven (7) were fracture cases; three (3) were cases involving the failure to remove foreign bodies; two (2) were obstetrical cases; two (2) were cases involving tonsillectomies; and one each of the following classes: use of atropine; a blood transfusion; treatment of a hip; operation on webbed fingers; error in diagnosis; x-ray burn and diathermy burn.

Respectfully submitted,
J. R. Ballinger, M. D.,
Chairman,
R. O. Hawthorne, M. D.,
Secretary,
Oscar Hawkinson, M. D.,
C. U. Collins, M. D.,
Arthur H. Geiger, M. D.,
Walter Wilhelmj, M. D.,
Medico-Legal Committee.

Dr. Ballinger: I have an additional report to make.

Dr. Mather Pfeiffenberger, Alton: I move that the House go into executive session. (Motion seconded by Dr. Andy Hall, Mt. Vernon, and carried.)

Dr. P. H. Kreuscher, Chicago: I move that all officers, chairmen and members of standing and regular committees, the head of the Department of Health, Mr. E. H. Rawlins, the attorney, Miss Jean McArthur, and Mrs. Esther Fraser, of the Chicago Medical Society, be permitted to remain. (Motion seconded by Dr. J. S. Nagel, Chicago and carried.)

The House then went into executive session.

The President: This is an executive session and what Dr. Ballinger has to report to you is not for publication, so please govern yourselves accordingly.

Dr. Ballinger: About the fifth of April of this year the Secretary received a letter from Dr. Woodward, head of the Legislative Bureau of the American Medical Association, stating that there would be a committee meeting of the American Bar Association in Washington on May 4th to consider charges made by the Ohio Bar Association against the Ohio State Medical Society's defense plan. They have been having trouble in Ohio for several years with complaints against the defense plan, which has been in existence since 1916. The plan was changed in 1935 to comply with the demands of what was considered in Ohio by the Ohio Bar Association as ethical methods of law. The plan was changed so that every doctor in the state who was sued was compelled to get his own lawyer to defend him. This was done for about a year and then the Ohio Bar Association complained again that the Ohio State Medical Society was in the authorized *lawful* practice of law. The Ohio State Medical Society offered to submit their plan of

medical defense, which by the way as you all know is a more favorable plan than we have because we employ counsel to defend our members. This plan was brought before the Unauthorized Practice of Law Committee of the American Bar Association and also the Grievance Committee of the same Association which met in Washington. Dr. Woodward asked practically all the states for help because he submitted a questionnaire to the states trying to answer the questions asked by the Ohio State Medical Society's Defense Committee. Illinois, Michigan, Wisconsin, Oregon, Maryland, and several other states were represented at this hearing in Washington. Dr. Woodward prepared a brief. The brief that was submitted by the Ohio State Medical Association was thought to be a very good one. After submitting these briefs and hearing them, then the twelve gentlemen of the American Bar Association asked certain questions. I have a letter from the Ohio State Medical Society signed by R. T. McCracken, Chairman of the Grievance Committee, which reads as follows:

May 4, 1937.

Mr. Charles S. Nelson,
Executive Secretary, Ohio State Medical Association,
Hartman Theater Building,
Columbus, Ohio.
Mr. Joseph L. Stern,
Chairman, Committee on Unauthorized Practice of Law,
Ohio State Bar Association,
Cleveland, Ohio.

Gentlemen:

As Chairman of the group, consisting of the Committee on Unauthorized Practice and Professional Ethics and Grievances of the American Bar Association to which the Committee on Unauthorized Practice of Law of the Ohio State Bar Association and the Ohio State Medical Association referred certain questions relating to the Medical Defense Plan of the Ohio State Medical Association and the participation of that Association's general counsel in the furtherance thereof, I am instructed to advise you that the group has unanimously agreed upon the answers which follow to the questions submitted:

"Does the Medical Defense Plan of The Ohio State Medical Association, as written and as administered in practice, constitute the unauthorized practice of law?" Yes.

"Is it unethical for a lawyer to act for The Ohio State Medical Association in furtherance of the Medical Defense Plan?" Yes.

"Is such representation a violation of Canon 35 of the Canons of Ethics of the American Bar Association?" Yes.

"Does such representation constitute solicitation, contrary to Canon 27 of the Canons of Ethics of the American Bar Association?" No.

Respectfully yours,
(Signed) Robert T. McCracken.

While it does not affect us, I would like to read Canon 35 of the by-laws of the American Bar Association:

CANON 35. INTERMEDIARIES

The professional services of a lawyer should not be controlled or exploited by any lay agency, personal or corporate, which intervenes between client and lawyer. A lawyer's responsibilities and qualifications are individual. He should avoid all relations which direct the performance of his duties by or in the interest of such intermediary. A lawyer's relation to his client should be personal, and the responsibility should be direct to the client. Charitable societies rendering aid to the indigents are not deemed such intermediaries.

A lawyer may accept employment from any organization, such as an association, club or trade organization, to render legal services in any matter in which the organization, as an entity, is interested, but this employment should not include the rendering of legal services to the members of such an organization in respect to their individual affairs.

Now that brought us up to the proposition of what we are going to do in Illinois. Unfortunately, it happens that Illinois will now be the first medical society I believe going on record as to what to do with its medical defense plan. The Medico-Legal Committee consulted with its lawyer Mr. Rawlins, Dr. Woodward, who is a lawyer, and Mr. McDavitt, I also consulted with an ex-judge in Cook County and with a Chancellor in Cook County, and the best advice that we can get from these attorneys is that if we continue the defense of malpractice suits that we are practising unauthorized law. Paradoxical as it may seem, the Medical Society is engaged in the prosecution of doctors practising unauthorized medicine. While the matter is a very important one it was determined in the Medico-Legal Committee meeting to get the advice of its Council and the advice of Dr. Woodward, so a meeting was held last Saturday at which the matter was considered from every angle, with the result that today we submit a resolution advocating a change in the by-laws of the State Society, signed by the members of the Medico-Legal Committee. This resolution reads as follows:

Be It Resolved, that the By-Laws of the Illinois State Medical Society be and are hereby amended, as follows:

Strike out all of Section 6 of Chapter IX of said By-Laws, except the first paragraph thereof, and insert in lieu of said portion so stricken out, the following:

It shall be the duty of the Medico-Legal Committee of this Society to elect a chairman on the last day of each annual meeting, such chairman to hold office until after the next annual meeting of this Society and until his successor shall be elected. Said Committee shall make such rules for the conduct of the affairs entrusted to it herein as may be proper for the management of its business; it shall keep a record of all claims and suits coming to its notice against its members and may inquire into and investigate such claims; shall prepare statistics showing as far as possible the number and character of such claims; may assist in any lawful and proper way in the preparation of the defense against claims and suits for civil malpractice presented or brought against any member of this Society in good standing provided such member shall request the aid of said Committee; shall make a report of its activities to the House of Delegates at the annual meeting, and a report to the Council each year at the January meeting.

(Signed) J. R. Ballinger
R. W. Hawthorne
O. Hawkinson
A. H. Geiger
C. U. Collins
Walter Wilhelmj.

The President: I will call on Mr. E. H. Rawlins, the Attorney, to discuss this resolution.

Mr. Rawlins: There is not much for me to add except this. We have given this matter a good deal of study and my conviction is, much as I dislike to give it, that we should adopt this resolution. In the first place, this report from the American Bar Association is not final, but is simply an unofficial expression of opinion of members of the Committee, to which opinion the Ohio State Medical Society agreed to submit. There has never been any question arise so far as the Illinois plan is concerned, and it has been going on for some thirty years, but there have been some cases, such as Motor Club cases, in which this question of firms practising law has come up, and it is my belief if this matter is presented to the Supreme Court that it will be held that this plan which we have been following for so many years constitutes the unauthorized practise of law for which the Society would be found guilty of contempt of court and a fine would be imposed upon them. It is my recommendation, as I told the Medico-Legal Committee and the Council today, that it is advisable to discontinue this defense plan. It is very difficult to conceive of any plan whereby you can actually render legal services to your members. I drafted this resolution and I think it is all right. Since being here and talking to a number of doctors it may be that this is a little broad and that some further change should be made. I am telling you what I think the situation is. I have had to do with the defense of malpractice cases for over thirty years, and I feel that the Medico-Legal Committee has done a tremendous thing. It has had much to do with promulgating in the state of Illinois a law which is very favorable to the medical profession. The law in Illinois is just as favorable to the medical profession as in any state and I feel that it is advisable that this plan be discontinued.

The President: This is all fresh. We had the first word of this on Saturday. I would like to entertain a motion that the House of Delegates consider this resolution proposed by Dr. Ballinger, and that it be referred to the Medico-Legal Committee and the Committee on Constitution and By-Laws, and brought before the House on Thursday morning.

Dr. J. S. Nagel, Chicago: I move the adoption of this resolution. (Seconded by Dr. N. S. Davis, III, Chicago.)

Dr. F. P. Hammond, Chicago: You say that this proposition has come up to us rather suddenly. The question comes up in my mind, why are we taking this action unless we have been cited for practising law unlawfully? Is it simply to forestall action and save expense or are we certain that action is coming, and is it possible for Illinois to go on a few years longer with the American Bar Association winking at us

Mr. Rawlins: There has been no complaint made. It is just possible that no complaint will be made. I feel, however, that those chances are very remote; in fact, I heard it some time ago that the American Bar Association was contemplating taking this action which has been brought up in a different way. It is possible that we may not be cited for having conducted this defense in the past. In view of the fact that we

have been given this opinion from the American Bar Association, my recommendation is that if we discontinue the defense as the Ohio State Medical Society did the chances are that we can avoid—at least I hope we can—any action being taken, avoid any publicity and avoid having a fine imposed. My advice has been to drop the defense plan.

Dr. N. S. Davis, III, Chicago: I think there is another thing to consider about this. This House of Delegates and the members of the Society have been fighting the practise of medicine by corporations, and we have to have the support of the legal profession in such a fight. It does not make a very good fight if we do not go into this business with clean hands and if we can show that we are not practising law.

Dr. G. H. Mundt, Chicago: Inasmuch as Mr. Rawlins made a statement relative to the importance of the House of Delegates having this information, the men who were delegates to the American Medical Association will remember that there were representatives of the American Bar Association in attendance at the Kansas City meeting to watch the function of the House of Delegates of the American Medical Association because the American Bar Association was planning to establish some such legislative body. As a matter of fact I think now that they established a type of legislative body very similar to the House of Delegates of American Medical Association. At that time in Kansas City there were a number of influential members of the American Bar Association in attendance and I had considerable conversation with one of the prominent members of the American Bar Association who called my attention to the fact that the medical societies throughout the nation were involved in the practise of law, as the Illinois State Medical Society probably had been. I think Dr. Davis is probably right. I would question further the necessity and propriety of the motion which has been made and seconded. I would question the advisability of going on record on this change in the by-laws at this minute. I am not as familiar with the by-laws of the Illinois State Medical Society as I was at one previous time, but it seems to me that we might ruminate on this thing until Thursday and not definitely make the change today.

The President: This goes to the Committee and will be reported on on Thursday morning.

Dr. J. S. Nagel, Chicago: I rise to a point of order. The motion before the House is to refer this to the Committee. The gentlemen are discussing the merits of the resolution and they will have opportunity to talk on this on Thursday.

The President: The Committee on Miscellaneous Business will consider this with the Committee on Constitution and By-Laws.

Dr. F. P. Hammond, Chicago: I rise to a point of order. Since you have listened to three men I ask that you listen to Dr. Blodgett who has risen to speak on this motion.

Dr. Pliny R. Blodgett, Chicago Heights: I shall discuss it Thursday morning.

The President: The question before the House is to refer this resolution to the Committee and for the Committee to have conferences with the Committee on Constitution and By-Laws and be prepared to report Thursday morning.

(Motion carried.)

Dr. E. S. Hamilton, Kankakee: I move that we go out of executive session. (Motion seconded by Dr. W. E. Kittler, Rochelle, and carried.)

The President: We will continue with the reports.

REPORT OF LEGISLATIVE COMMITTEE

To the Members of the House of Delegates:

There was once a very competent and energetic physician who enjoyed a large practice and prided himself on the careful thoroughness of his work. One afternoon he returned to his office only to find a company of 67 patients, each of whom began to clamor for immediate attention on the grounds of painful distress that made his particular case an imperative emergency. The good doctor was overwhelmed. He wanted earnestly to do the right thing by each patient. To examine so many in one afternoon was obviously impossible. With the aid of his assistant and two nurses he selected as best he could the 18 patients whom he decided were in the most serious condition. The others were asked to come back another day, innocent of the fact that half a dozen of those selected on the basis of vocal aggressiveness were suffering from nothing worse than insomnia while two, quiet, non-aggressive patients suffering with acute appendicitis had been turned away. The doctor had done the best he could under the circumstances but that didn't save the two patients with appendicitis.

This parable illustrates exactly the situation which had developed by the end of April in the Illinois General Assembly. Approximately 1,200 bills had been introduced. Less than 100 had been definitely disposed

of either by passage or defeat. Committees had taken action on only about 300. The other 800 had yet to be considered in commitee. Less than 40 legislative days remained in the session. This offered the prospect of an average of more than 25 bills for consideration daily. No deliberative body can handle satisfactorily that volume of such business without a great deal of advice and assistance from reliable, authoritative sources. Pressure brought to bear by the vocal representatives of selfish and predatory interests often gains ascendancy with plausible argument unless vigorously combatted by the forces of righteousness and sound practice.

The crowded calendar of the General Assembly, the skillful maneuvers and polished finesse of selfish interests in obtaining laws of advantage to them and the multitude of bills that relate to medical matters has made the work of your Legislative Committee unusually strenuous and important throughout the current session and it will remain so until the end. Every bill introduced has been scanned and out of the 1,200 odd no less than 236 which relate closely to medical and public health matters have been studied with great care. These are classified below into general groups with pertinent discussion of the more important bills.

Medical, Hospital and Sanatoria. Among the 31 bills in this category, ten relate to subjects of fundamental importance to medical practice—licensure, physical examinations, fees and liens. Strong support is back of some of these bills.

S. B. 171 and 172 would legalize the licensure of chiropractors and set up an independent State examining committee made up of chiropractors. Enactment of these bills was recommended by the Senate Committee on Licensure and Miscellany and they are at this writing on passage stage in the upper Chamber. This indicates considerable pressure behind the bills and a favorable disposition among the lawmakers.

H. B. 194, which would set up an independent osteopathic State examining committee, represents an extraordinarily subtle and clever legislative maneuver. It purports to be merely an incidental amendment to the Medical Practice Act but inserts a section that would set up new licensing machinery for the osteopaths. This bill is still in committee but has the full force of the osteopathic interests back of it.

Two bills, H. B. 114 and 142, would make obligatory the physical examination of persons about to marry. That laudable purpose has the full endorsement of the medical profession but both bills specify maximum fees for the examination. While much may be said in favor of a limited fee, legislation to this effect would establish the principle of fee fixing which would tend to regiment and carry into politics the practice of medicine. H. B. 114 is on passage stage in the House.

S. B. 11 and 136 would require the licensure of x-ray technicians and set up an independent State examining committee therefor. The enactment of these bills, which have a Do Pass endorsement of the Senate Committee on Licensure and Miscellany, would establish a dangerous trend in licensure. It would give to one specialized phase of medical practice a legal standing equal to the medical profession and would open the gate for the licensure of all manner of technicians—bacteriologists, serologists, anesthetists, etc. Politicians are favorably inclined toward extending the practice of licensure because of its revenue producing and political significance. This is indicated by the 21 bills on the subject which have been introduced.

S. B. 8 and 339 would give to physicians and hospitals for services rendered a lien on funds allowed as damages in personal injury cases. S. B. 339 is well drawn and deserves the united support of the medical profession. Its enactment would aid greatly in preventing losses incurred in the emergency treatment and care of accidentally injured people who collect damages allowed primarily to cover medical and hospital expenses.

The many other bills under this category relate to such things as the construction of State tuberculosis sanatoria, the emasculation of persons who commit crimes against children, the prohibition of ambulance chasing, the regulation of optometry and various matters of the same general character. All require the closest scrutiny to prevent the unopposed enactment of ill-advised and even dangerous laws.

Non-Medical Licensure. A total of 21 bills concerned with the registration or licensure of chiropodists, painters, watchmakers, barbers, plumbers, motormen, motion picture projectionists, librarians, restaurants, hotels and various other occupational groups and classes of establishments have been introduced. Some of these are of direct interest to the medical profession since they involve the health factor of applicants. All are indirectly important in that they represent a strong trend toward licensing occupational groups of all kinds. This class of bills requires the most painstaking study in order to detect clauses or sections that relate to the licensure of medical cults.

Sanitation. A group of 32 bills on this general subject have been introduced. The growing number of sanitary districts in the State and the large sums involved in their development and maintenance have attracted political attention to this field. Most of the bills in this category relate to finances—the validation of bonding action, raising the debt limit, increasing taxing power, etc.—of municipalities and other political units. Others concern milk, washrooms, toilet facilities, strip mining, etc.

They are of interest to physicians because of their bearing upon public health and on taxation. The socializing of projects in sanitation may lead also to the idea of extending that practice into other fields.

Food and Drugs. The most important to the medical profession of the 16 bills introduced on this subject is H. B. 121 which adds amytal, luminal, veronal, barbital, acid diethylbarbituric and derivatives to the drugs covered in the Uniform Narcotics Act. The other proposals relate to food standards, labeling cosmetics, filled milk, cold storage, etc.

Labor and Workmen's Compensation. The 28 bills on this subject indicate great legislative interest in occupational hazards and the various forms of compensating workmen for injuries suffered in the course of em-

ployment. Most of the bills introduced are concerned with these matters. The regulation of hours of employment, the subject of 5 bills, is important to hospitals. S. B. 45 and H. B. 143 would limit to an 8 hour day and a 6 day week the employment of women. The bills limiting hours and days of employment have had favorable consideration.

The practice of medicine is more and more involved in the legal schemes pertaining to workmen's compensation, occupational disease and industrial hygiene. Not only are physicians brought into the picture by the employer, the employee and the officials concerned in compensation claims but the trend toward favoring workers is driving industry to build up medical departments, require physical examinations of applicants for work and of employees and to extend medical care to the families of workers. Proposed legislation concerning labor is therefore of direct interest to the medical profession.

Relief. Medical practice is inevitably involved in relief schemes so that the 25 bills concerning this subject have required close attention and study. No one feels that a satisfactory system of providing medical service to relief clients has been developed. Many schemes most of them impractical, have been advanced from various sources but none has appeared in the form of legislative bills at the current session of the Illinois General Assembly.

The outstanding measure in this group which has become law, is an extension of the 3 per cent sales tax for two years. Funds from this source will be drawn upon to meet the relief obligations which the State has assumed. Other bills concern the transfer of moneys from one fund to another, the regulation of pension grants to the aged, blind, dependent children, etc. The trend points clearly toward the assumption on the part of the State of providing all citizens with the essential needs of life.

Traffic Regulation. Dominated by several bills proposing a drivers' license law and compulsory liability insurance, 30 bills in this category are before the General Assembly. They seek to regulate almost every conceivable factor and contingency in the operation of motor vehicles. They are of interest to the medical profession more as a legislative barometer, emphasizing the general trend toward regulating everything, than as directly affecting medical practice.

A drivers' license law would doubtless be effective in preventing accidents if enforcement by a trained staff of permanent tenure is possible. Progress toward passage of the bills has been delayed because of a political fight to determine whether jurisdiction will be placed under the Governor or Secretary of State.

Safety. Aside from proposals on traffic regulations, 16 bills concerning safety are before the legislature. They relate to such things as steel street railway cars, reflectors on railway equipment, safety glass in common carrier equipment, good brakes on bicycles, automatic devices on passenger elevators, and the like.

Insurance. Among the 8 bills on this subject, two, S. B. 100 and H. B. 200, which are identical, would completely revise and codify the insurance laws of the State. While much can be said in favor of the principle involved, so radical a change demands the most careful thought and great foresight in order to prevent injustice to many people. The other bills relate for the most part to situations that arise but infrequently. S. B. 237 would create a State insurance commission of five members to supervise all insurance companies doing business in Illinois.

Schools and Education. The 8 bills of this classification which are of special interest to the medical profession relate mostly to providing educational facilities for the disabled. S. B. 1, however, proposes the creation of a State Board of Education with broad powers over the public educational program of Illinois. Such a board would manifestly have much to do with policies involving the teaching of hygiene and health protective activities in the schools. Two bills, S. B. 40 and 41, substitute the word "disabled" for the word "crippled" in the law concerning the education of handicapped children in order to broaden the classification. Medical opinion would be involved frequently in the functioning of these laws.

Municipal Health Departments. Four bills on this subject have been introduced, all relating to Peoria. The purpose of all was to enable Peoria to establish by referendum a city board of health with power to levy a special tax for health purposes. The first two, which were companion bills, might have legalized the employment of a health officer not qualified with an M. D. degree. These were withdrawn in favor of two which clearly require as health officer a regularly licensed physician. The bills have become law and Peoria has voted to take advantage of the proposition.

Anti-Vivisection. H. B. 615 represents perhaps the most astute and clever legislative maneuver ever attempted in favor of anti-vivisection. Neither vivisection nor animal experimentation is mentioned in the bill. Both are subtly prohibited, however, by implication. The bill merely specifies that municipalities shall provide for impounding dogs and cats and prescribes the exact ways in which unclaimed animals shall be disposed of. They could be sold to "proper persons" or "humanely destroyed."

Miscellany. A score of bills relating to such subjects as absentee voting, adoption of children, crime and taxation would have a bearing upon the practice of medicine and on the medical profession in one way or another.

Summary. A casual scanning of this report will impress the reader with the multitude of divergent interests which bring pressure to bear upon the General Assembly. It will reveal the restless and unsettled state of affairs with respect to matters of social significance and general public interest. It discloses a groping of political leaders after some definite policy or program that no one has succeeded in bringing to light.

This situation makes doubly important a constant alertness on the part of your Legislative Committee. It multiplies and makes more difficult its work. Nothing can be taken for granted. Every bill must be scanned and about one-fourth of all the proposals introduced must be studied and analyzed with meticulous

care. In no other way can ill-advised, tricky and unsound legislation be opposed intelligently. So far no law which would lower the standards of medical practice, interfere seriously with research work, regiment the medical profession or operate to public disadvantage from the standpoint of good medical care has been enacted by the General Assembly now sitting.

Respectfully submitted,

Mather Pfeiffenberger, M. D.
M. J. Hubeny, M. D.
J. R. Neal, M. D.

Chairman,
Legislative Committee.

REPORT OF MEDICAL EDUCATION AND HOSPITALS COMMITTEE

To the Members of the House of Delegates:

Medical Education. The selection of medical students continues to be one of the most perplexing problems that confronts the officials of all medical schools. The medical curriculum is the most difficult of any professional course. It is obviously unjust to a student to admit him to a medical school only to find that after he has spent one or two years of his time and a considerable sum of money, he is incapable of completing the course. It is equally unjust to the sick public to graduate a man who lacks the mental and moral qualifications to practice modern medicine. In addition to the scholarship record in premedical college courses, a series of "aptitude tests" has been devised to attempt to determine the fitness of a student for a medical career. These tests are planned to discover the student's general knowledge, his ability to comprehend the meaning of the printed page, his ability to reason, and other important features of his mentality. While not infallible these tests have been very useful. Each year they are given to more than 10,000 college students who voluntarily take them. All of the papers are sent to a central office and are graded by the same group of examiners. During the years 1933 and 1934, more than 20,000 students took these aptitude tests and of these 4,444 matriculated in medical schools. The value of these tests in determining a students' fitness to enter upon the study of medicine is indicated in the following Table based upon the records of the above 4,444 students.

TABLE 1.

Grouping according to aptitude test rating	Per cent. of applicants in each group	Per cent. in each group with clear records	Per cent in each group dropped for poor scholarship
1-33	24.5	58.2	18.2
34-66	32.3	71.5	10.9
67-99	43.2	83.8	5.3

From the above Table it is seen that of those in the lowest third according to the test rating, less than 60 per cent. had clear records, that is, free from failures and incomplete work that had be "made up," while nearly 20 per cent. had to be dropped for poor scholarship. On the other hand, nearly 85 per cent. of those in the upper third had clear records and only about 5 per cent. were dropped for poor scholarship. These aptitude tests are thus proving useful in avoiding injustices to students and to the public.

Two-year Medical Schools.—There still exist in the United States about ten medical schools which give only the first two years of the medical course. None of these schools are located in Illinois but many of their students enter the schools in our state to complete their medical education. A recent editorial in the Journal of the American Medical Association (Feb. 13, 1937) analyzes the origin and later careers of the 1,471 students who matriculated in ten two-year schools from 1925 to 1928. The results of this analysis are shown in Table 2.

TABLE 2.

Total number students	1,471
Per cent. from state in which school is located	62%
Per cent. from outside that state	38%
Total number graduating from Class A schools	1,219
Per cent. graduating from Class A schools	83%
Per cent. practicing in state in which school is located	35%
Per cent. practicing outside that state	65%

The soundness and force of the arguments for the maintenance of two-year medical schools are greatly reduced by the figures in the above Table. The elimination of these schools would be a hardship on the members of the faculties, but it would reduce by a few hundred each year the number of students entering the profession of medicine. This might be a desirable result.

Postgraduate Medical Education.—Reference has been made in previous reports of this Committee to the need of facilities for high grade postgraduate education in medicine in Illinois. This applies not so much to short "refresher courses" which are now being provided with some degree of efficiency by county and district and even state medical societies and by certain medical schools, but more particularly to longer and more efficient training in a given specialty. The establishment by the American Medical Association of Boards of Certification in the different specialties has rendered this need for adequate postgraduate training a very urgent one. The various Boards of Certification require from three to five years of training after the interne year for admission to their examinations. Many of the hospitals of Illinois are acceptable for the training of internes. By improving their facilities and methods some of these hospitals might be approved for residencies in one or more specialties. A resident in a hospital adds greatly to the efficiency of the service and relieves the staff of much detail in the training and supervision of internes. It is hoped that those hospitals with adequate facilities will not overlook this opportunity to improve their service in this way.

Hospitals. Changes in the hospitals in Illinois during the year 1936 are shown in Table 3.

TABLE 3.—STATISTICS PERTAINING TO HOSPITALS IN ILLINOIS

	Number		Increase or Decrease 1936	
	1935	1936	Actual	Pct.
Hospitals—Total	321	317	—4	—1.25
Hospitals—Government	78	75		
Hospitals—Non-Government	243	242		
Beds—Total	75,949	73,828	—2,121	—2.87

TABLE 3—CONTINUED

Beds—Govt. Hosp.....	52,056	50,506	—1,505	—2.90
Beds—Non-Govt. Hosp.....	23,893	23,322	—571	—2.46
Patients admitted—Total....	543,141	609,365	66,224	+10.90
Patients admitted—Govt. Hosp.	152,564	150,216	—2,348	—1.50
Patients admitted—Non-Govt. Hosp.	390,577	459,149	68,572	+14.80
Av. Daily Occup.—Total...	60,553	60,573	20	+0.03
Av. Daily Occup.—Govt. Hosp.	47,808	47,103	—706	—1.49
Av. Daily Occup.—Non-Govt. Hosp.	12,744	13,470	726	+5.40
Hosp. with Clin. Labs.....	259	246	—13	—5.30
Hosp. Labs. with M. D. Directors	189	179	—10	—5.60

Statistics for Illinois for 1936 show a wholesome but moderate increase in patients admitted and average daily occupancy in non-government, as compared with government, hospitals. Surprising is the reduction in the number of hospitals with clinical laboratories and with graduate physicians as directors of laboratories.

Respectfully submitted,
W. K. Marshall, M. D.,
H. O. Munson, M. D.,
J. P. Simonds, M. D.,
Chairman,
Committee on Medical Education and Hospitals.

REPORT OF EDUCATIONAL COMMITTEE

April 1, 1936—March 31, 1937

To the Members of the House of Delegates:

The Educational Committee has the pleasure of submitting its Annual Report covering the twelve months ending March 31, 1937. Again, the Committee has had a good year. Again, with the loyal support of the officers and members of the Illinois State Medical Society, definite and concrete advances have been made in the program of lay education.

New methods have been instituted and the good of the old methods continued and developed.

A statistical report can not indicate the actual accomplishments of any Committee's work, yet it will portray the various types of programs undertaken.

Window Exhibits. One of the new methods of bringing the story of medicine to the public was begun last July. The plan may well serve as a model to city or county medical societies throughout the state. The manager of the Marshall Field & Company Annex Building offered to furnish, free of rental and service, one display window on the first floor of the building for the use of presenting displays of educational value to the public.

Displays have covered the following subjects: Fourth of July Accidents, The Circulatory System, Cancer, Foot Disorders, Immunization, History of Surgery and Anesthesia, The Heart and Bronchoscopy. Individual physicians, the Exhibits Department of the American Medical Association and the Art Department of the University of Illinois College of Medicine have been most generous in supplying ideas and material for the windows, which are changed every month. This type of education is excellent and should be developed. If attractive and well done, these exhibits can tell a story and bring home a definite lesson in good health.

Hay Fever. Many people in Illinois are tremendously interested in the subject of hay fever. The Educational Committee was fortunate in being able to furnish the Chicago Daily News and the Chicago Tribune with the daily pollen count during the 1936 season. The count was furnished by a member of the Chicago Society of Allergy. The papers carried almost daily stories and the public was much interested which leads the Committee to feel that this type of service could be given in other cities if some local doctor will furnish the pollen count. It should appear as coming from the local county medical society.

Vocational Guidance. The Chicago Rotary Club and the Chicago Chamber of Commerce carried on an experiment in Vocational Guidance for a selected group of fifty young men of the North Park College. Panel discussions were held by prominent manufacturers, the Bar Association, Retail Merchants and others. The Medical Society was invited to present a discussion on "Vocational Outlook for Youth in Medicine." The program was followed by a tour of Cook County Hospital. It was a huge success! Similar programs have been sponsored in a number of cities and should be in others.

A Special News Column. Late in January a special article on Pneumonia (then prevalent) was released to newspapers in Illinois not using the regular health column furnished by the Committee. Eighty-six editors requested the Committee to send them weekly the same style material. Articles have been written on Syphilis, Socialized Medicine, Medical Economics, Scarlet Fever, Maternal Welfare, Immunization, Heart Disease, etc.

Radio Varieties. It was evident that the Committee should make the radio programs more vital. A number of new ideas were tried out—one a series of eight talks called "A Doctor's Diary," others in the form of of Round Table Discussions, talks with questions and answers following, and others all questions and answers.

A total of 250 approved radio programs were given over Chicago stations. Copies of talks were furnished a number of county and city societies sponsoring local radio programs.

Speakers Bureau. 456 popular programs were given before lay organizations. The Committee sought a guarantee of an audience of at least 50 adults before scheduling speakers and to the smaller groups furnished copies of radio talks and other material which could be presented by the members of the club. Many of the largest clubs in Illinois asked for speakers.

Women's clubs, men's clubs, Parent Teacher Associations and Principals of schools asked for programs on Syphilis. The Committee has a splendid list of speakers who are prepared to discuss this topic.

State Medicine was a subject of popular interest and the Committee arranged about one program a week on that topic. Individual students and High School Forums have requested speakers and material on State Medicine.

Series of programs were planned for Y. M. C. A.'s. Central Y. M. C. A. of Chicago had two programs a week from September to May 1st, 1937. Another series was arranged for the members of a medical fraternity.

Reports indicated that the Society has built up a splendid list of speakers. Doctors who would like to assist in handling speaking engagements are urged to submit their names to the office of the Committee. The office of the Committee is earnestly trying to build up interest and worth while audiences for these health programs.

Speakers were scheduled for the Annual Meetings of the Illinois Federation of Women's Clubs and the Illinois Congress of Parents and Teachers.

Speakers have been suggested as well as scheduled for the Women's Auxiliaries.

Exhibits. Exhibits were arranged for the Annual Meeting of the Illinois State Nurses Association, the Illinois Federation of Women's Clubs, the Wilson and South Chicago Y. M. C. A.'s, the Joliet Township High School, Central Y. M. C. A. of Chicago, and the Summer Round-Up Chairmen of the Illinois Congress of Parents and Teachers. The American Medical Association exhibit on quackery has been very popular.

Public Libraries. Public libraries were supplied with material for bulletin boards and reference. Many requests for similar material have come from people who have seen the articles in libraries. A letter from the Supervisor of Parent Education of the Works Progress Administration in one of the larger cities of Illinois, is typical of many others—"I saw some of your educational material posted in the public library here. We have several Parent Education teachers meeting many groups of mothers each week and I wonder if we could secure material for our leaders so that they will be better qualified for work in health. I shall appreciate any assistance you can give us."

6,832 copies of health articles have gone to public libraries, W. P. A. workers, leaders of Red Cross groups and Home Bureau Advisers.

Copies of Dr. C. B. Reed's Presidential Address were sent to several hundred interested librarians and civic leaders.

Medical Economics. Medical Economics has been stressed whenever advisable. Articles have been sent to newspapers and libraries; radio talks have covered the subject; talks have been presented before lay organizations and material secured upon request for members of the State Committee.

Maternal Welfare. Programs on Maternal Welfare have been arranged for women's clubs, study groups, Parent Teacher Associations, Home Bureau units and American Legion Auxiliaries.

Articles on the importance of care of the expectant mother have been released to newspapers, libraries and study clubs.

Radio talks have been given on the importance of pre- and post-natal care.

Programs for county medical societies in the field of obstetrics and pediatrics were prepared. Through the office of the Educational Committee contacts with officers of county societies were made for the Field Representative of the Maternal Welfare Committee.

Fifty-eight speakers were secured to present programs for 8 county societies during the spring months.

Publicity was given a number of these programs. Outlines for speakers and programs for county societies were mimeographed. Many letters and telephone calls were necessary in arranging these programs.

Package Libraries. The demand for package libraries increased. It is possible for the office of the Committee to furnish material on any popular health subject. Scientific material is secured through the Library of the American Medical Association.

Special Conferences. Material Welfare Committee.

Chicago Board of Education conference with health organizations resulted in the ultimatum that no health work should be undertaken in Chicago schools without permission from the Superintendent.

Conference of Summer Round-Up Chairmen of the Illinois Congress of Parents and Teachers resulted in special articles in the P. T. A. Bulletin, and material being sent to Chairmen of campaigns and officers of county societies.

Conference with leaders of Illinois League of Women Voters.

Conferences with leaders of Woman's Field Army for Control of Cancer.

A great deal of time has been given to Health Chairmen of the Illinois Federation of Women's Clubs, the Illinois Congress of Parents and Teachers, the Illinois State Nurses' Association, the State Department of Health, and special committees of the Illinois State Medical Society.

Newspaper Releases. Thousands of releases have gone to Illinois newspapers for publication over authority of the local county medical societies.

Thousands of releases announcing meetings of county socicties have been sent to newspapers in Illinois, Indiana and Iowa.

Special announcements of meetings of the Chicago Medical Society and its Branches have been sent to newspapers.

Hundreds of short articles on popular health topics have been written and approved by the Committee.

Assistance to County Societies. See report of Scientific Service Committee. The programs arranged for county medical societies were handled through the office of the Educational Committee. A new pamphlet outlining the services available to county societies will soon be ready for secretaries.

The office of the Committee prepared and mimeographed thousands of notices for secretaries of county societies and this assistance has paid dividends in better attendance at meetings, cooperation among adjoining counties, and excellent programs.

Clinical programs can be arranged in many fields, and there will soon be teams organized to give practical

programs and demonstrations on syphilis, Heart Disease and other requested subjects.

Respectfully submitted,
R. R. Ferguson, M. D.,
Chairman,
Charles P. Blair, M. D.,
C. G. Farnum, M. D.,
James H. Hutton, M. D.,
Otis O. Stanley, M. D.,
Jean McArthur,
Secretary,
Educational Committee.

REPORT OF SCIENTIFIC SERVICE COMMITTEE

March 31, 1936, to April 1, 1937

To the Members of the House of Delegates:

The past year has been one of unusual activity for the Scientific Service Committee. It has endeavored to meet all the requirements of its primary purpose, to-wit: the servicing of its county societies (of which there are almost 100). This servicing consists in procuring speakers and arranging programs for the county societies' scientific meetings. The names of the respective societies, the number of programs arranged, and the subjects, are herewith listed in detail. It will be noted that about one-half of all county societies availed themselves of this service, in some instances as many as seven times during the past year.

COUNTIES FURNISHED PROGRAM AND NUMBER OF SPEAKERS

Bureau	6	LaSalle	5
Carroll	3	Livingston	4
Christian	2	Marion	3
Chicago Groups	3	McHenry	9
Coles-Cumberland	1	McDonough	5
DuPage	3	McLean	2
DeWitt	2	Peoria	5
Edgar	2	Perry	6
Franklin	7	Randolph	7
Fulton	2	Rock Island	3
Hancock	4	Stephenson	2
Henry	4	Southern Illinois	7
Indiana	1	Scott County, Iowa	3
Iroquois	2	Tri County	3
Jo Daviess	1	Union	1
Jefferson-Hamilton	2	Vermilion	1
Kankakee	2	Whiteside	5
Kane	7	Winnebago	2
Knox	2	Will-Grundy	26
Lee	4	8th Councilor District	2
Logan	1		
		Total	162

CLASSIFICATION OF SUBJECTS PRESENTED

Allergy	2	Obstetrics	17
Anesthesia	1	Pediatrics	13
Cancer	5	Psychiatry	1
Dermatology	5	Surgery	21
Economics	11	Urology	5
Eye, Ear, Nose & Throat	6	X-Ray	4
Endocrines	10	Miscellaneous	3
Gastro-Intestinal	8		
Heart	18	Total	162
Internal Medicine	32		

Letters were again sent out during the year to all members on our speakers' list requesting them to supply us with new subjects and to bring their old subjects up to date. Our list was augmented with new speakers and this will shortly be sent to all county societies. The Committee has an excellent list of speakers from which to draw and can fill appointments in any part of the state if sufficient notice is given. The list includes a number of doctors from St. Louis who are willing to address groups in the southern part of the state.

The Scientific Service Committee is not only prepared but eager to give every possible aid to our county societies. Through the valuable aid of the Educational Committee, of which this is a sub-committee, we are also able to give publicity concerning these meetings through the medium of the local press. The Scientific Service Committee feels that members of the county societies should take an active part in this educational work. There must be members in many of our county societies, who through special interest or experience in some subject, are well qualified to present it as part of a scientific program.

If they will send their names and subjects to Jean McArthur, Secretary of the Educational Committee, they will be added to our speakers' list.

Another activity of the Scientific Service Committee during the past year has been the holding of Heart Clinics, five of which were conducted before various county societies. A heart specialist examined and demonstrated from eight to fourteen heart patients in the presence of a group of doctors in the afternoon and in the evening gave a practical lecture on the more common forms of heart disease.

Finally the Scientific Service Committee took an active part in furthering and expediting the post-graduate courses in Obstetrics and Pediatrics. These courses were only recently established under direction of the Department of Public Health of the State of Illinois.

The Scientific Service Committee not only freely tendered its facilities to the Committee in charge of this work, but assisted in scheduling eighteen men in the month of March alone. It will readily be appreciated that this called for very considerable time and effort, and it will become more voluminous as time goes on. In retrospect therefore, the Scientific Service Committee feels this past year has been both active and fruitful.

Respectfully submitted,
Robert S. Berghoff, M. D.,
Chairman.
R. L. Green, M. D.,
R. K. Packard, M. D.,
H. N. Rafferty, M. D.,
Walter Stevenson, M. D.,
Scientific Service Committee.

REPORT OF MEDICAL ECONOMICS COMMITTEE

To the Members of the House of Delegates:

The annual report of the work of the Committee on Medical Economics is more or less a resume of the monthly reports printed in the Illinois Medical Journal. Each month we have attempted to give you a report

of the current economic problems and exactly what had been done by the Committee. To be sure, at times, there has not been much to report, but that does not mean the committee has not been active, but is the result of the fact that progress is necessarily slow in this work.

Again several new members were added to this Committee at the beginning of the year. They have all been faithful in their work and have assumed the duties assigned to them cheerfully and have made progress in the subject assigned to them. Early in the year, a special subject was assigned to each member of the Committee for study and report. At each meeting of the Committee, and four have been held, every member has had a report ready to make. While several of these reports were not final, all were very interesting and show that definite progress is being made in our study of the economic problems of our state and nation. Practically every member of the Committee has furnished a paper for the Medical Economic Column during the year. Those who have not are working on new problems and will have at least preliminary reports ready in the next few months. To obtain enough definite information on a new subject to write an authentic paper on the same requires several months.

As last year, our main project has been the arousing of the medical profession to the dangers confronting them, particularly in regard to State Medicine. Some few of the Committee and State Officers have given unsparingly of their time and energy in the work of educating the medical profession as to imminence of state medicine. They have traveled over the entire state, addressing county medical societies either in groups or as individuals. At times it seems that they are putting over the message, while at other times it seems the medical profession as a whole, is only faintly interested in the problem.

In the work of carrying the message of the medical profession to the laity, we feel that definite progress has been made during the past year. There is an ever increasing interest in and demand for additional information on the part of Rotary, Kiwanis, Lions and other luncheon or service clubs, as well as Parent Teachers' clubs, Women's clubs and similar organizations. Even with the able assistance of the Secretary of the Educational Committee of the Illinois State Medical Society, Miss McArthur, we have been unable to fill the demand particularly in the smaller towns and for the smaller clubs and organizations. There is a real demand for additional speakers to fill this demand and it is unfortunate that a large number of the younger men cannot be interested in this work. With the assistance of the Educational Committee and their packet libraries, this Committee, and the State officers, any man really interested in the subject could easily prepare himself for the work. It is asking too much of any small group of men to fill all the demands for speakers that come from all parts of the state.

The question of Group Hospitalization is still with us. The plan is in actual operation in Chicago, Peoria, and Rockford. In Chicago without the parental blessing of the Chicago Medical Society, the plan is being received by the public very kindly under the able management of keen clever men, who fully realize the value of publicity. It is too soon to make any decisions as to the success of the plan. However, success in Chicago will lead to rapid expansion to other smaller cities in the state.

Care of those on relief continues to be one of the great economic problems of the State. A report by the Committee on the Care of the Indigents, made in the Medical Economic column a few months ago and read, we hope, by every member of the Illinois State Medical Society shows that progress is being made in getting away from the so-called "County Doctor" and substituting therefor, some plan whereby the sick can have free choice of physicians. This is progress, but why medical service should be furnished at reduced rates for the wards of the State when all other necessities of life are paid for at the regular rates is beyond the ken of this Committee. We must continue to care for the indigent to the best of our ability, but there is no reason why this service cannot be furnished and paid for according to business methods. It is an individual problem for each community. Success depends on close cooperation between the members of the medical profession with a little less jealousy and selfishness.

Closely allied to the above is the project, proposed to the Council recently, of care for the so-called clients of the National Resettlement Administration at reduced prices. This affects the farmers who are being financed by the Resettlement Administration, and accordingly is not of much interest to the city doctors. So far the Council has not seen fit to make a definite decision in the matter feeling there are many sides to the problem and that the plan as proposed by the field men of the Resettlement Administration has too many of the features of prepaid insurance, to be accepted without the dangers of setting up the entering wedge of a much greater and more inclusive plan. This entire question may be up for discussion at the annual meeting and in the event that it is, should be of particular interest to the downstate members of the Society.

Every member of the Illinois State Medical Society who has the reports of the Public Relations Bureau of the Medical Society of the State of New York is most fortunate. They are the most comprehensive and up to the minute of all available at this time. The medical men of the State of New York are to be congratulated on this work. The Bureau is most generous in furnishing the officers of other states with their reports and on behalf of the members of this Committee, we wish to thank them for sending these reports, to every member during the past year. Recently in their reports they expressed the opinion that during the next sixty days the pressure would be turned on again in regard to extension of the so-called Socialized Plan. During the past few months a lull in the work has occurred, due probably to more urgent work with the strikes, Supreme Court and threatened war in Europe. However, we are warned that as soon as some of these are settled, socialization will again receive attention.

Any member of the Illinois Medical Society who can read these reports should not fail to do so.

We hope that there will be an increasing interest in the broader aspects of the economic problems of the medical profession during the coming years and that there will be a realization that this is a problem for the entire medical profession and that no man is too big or too small to be vitally interested. He should assume his share of the responsibility for the outcome and do his part in guiding the decision. While progress is being made, it is all too slow, particularly for those who are studying the problem most thoroughly, and assistance is needed.

The Chairman of the Committee wishes to thank all members of the Committee for their cooperation during the past year. Every member has cheerfully performed the assigned duties and promptly furnished all information and papers requested. The Council and the Officers of the State Society have cooperated in every way possible. The Editor of the Illinois Medical Journal has been of great assistance in putting over the message to the members of the Society. We hope that progress will continue during the next year at the same or an accelerated rate.

Respectfully submitted,

H. M. Camp, M. D.,
E. P. Coleman, M. D.,
W. M. Hartman, M. D.,
J. R. Neal, M. D.,
I. H. Neece, M. D.,
R. K. Packard, M. D.,
Ralph Peairs, M D.,
C. B. Reed, M. D.,
C. S. Skaggs, M. D.,
C. E. Wilkinson, M. D.
E. S. Hamilton, M. D.,
Chairman,
Medical Economics Committee.

REPORT OF VETERANS' SERVICE COMMITTEE

To the Members of the House of Delegates:

Although there has been nothing of importance relative to Veterans' Legislation during the past year, your Committee, nevertheless, has continued in its efforts to affect even a closer contact with the Veterans' Organizations. The educational method must go on in order that there be greater understanding between Veterans and the medical profession.

Efforts have been made in the past year, through the new "Department Surgeon" Dr. Norman L. Sheehe of the Legion, to educate the Legion Post members in medical affairs as they relate to the Veteran and the medical profession. Their educational work is being done through talks given by medical members of the Veterans' Organizations and speakers furnished through the "Educational Committee" of the Illinois State Medical Society. Medical material is also furnished by the "Educational Committee." Many of the Posts have special medical meetings called "Medical Nights." This is a new feature which has recently been inaugurated. Your Committee believes this augurs well for future better mutual understanding.

Respectfully submitted,

F. O. Fredrickson, M. D.,
Chairman,
John M. Hayes, M. D.,
J. S. Nagel, M. D.,
F. G. Norbury, M. D.,
T. B. Williamson, M. D.,
W. C. Burket, M. D.,
Veterans' Service Committee.

REPORT OF MEDICAL ADVISORY COMMITTEE ON INDIGENT MEDICAL CARE

To the Members of the House of Delegates:

Since the last annual report of the Committee, federal funds for providing medical service to relief clients have been withdrawn. Responsibility for providing medical care to the poor was first placed on counties and then back to townships by the State Legislature. As matters stand now, townships are responsible for providing medical care to the poor except in 17 counties which have the commission form of government.

During the year the Committee made a survey to determine how medical care for the poor is being handled in the various counties. To this end a report was requested from the Secretary of each County Society. The findings of this survey were published in the January, 1937 issue of the Journal. The study revealed a diversity of practice with no uniform plan or system prevailing. In 21 counties there was a definite understanding between the medical societies and the county authorities with respect to fees, class of patients included and procedures but the plans varied considerably from county to county. Details with reference to the whole situation may be found in the report in the January, 1937 issue of the Illinois Medical Journal.

The Committee was called upon also to consider a plan proposed by the Resettlement Administration for providing medical care to its clients. The function of this agency is to lend money on easy terms to needy rural families whose local credit has been exhausted. Funds are advanced in cash for the purchase of such equipment, supplies, and even land, as the applicant may need to establish himself as a self-sustaining citizen.

Recognizing that good health is essential to permanent economic improvement, the Resettlement Administration decided to establish a scheme of providing medical care to all of its clients. Since the law concerning the Resettlement Administration makes no provision for medical service, some indirect system was necessary.

The first plan advanced was the creation of a corporation through which medical service and other aids would be extended. This plan was adopted in North Dakota but stood in such disfavor with the medical profession of the nation that it has not been promoted elsewhere.

A modified plan which binds the medical profession

to provide services at a flat 50 per cent reduction in the usual fees was offered as a substitute in other States. Physicians were asked to make this concession although the clients of the Resettlement Administration paid full market prices for equipment and other things placed within their reach by loans from the government. Why physicians should be asked to provide cut-rate services under these circumstances is not clear.

With some modification, the plan advanced by the Resettlement Administration has been adopted by the medical profession in Indiana, Missouri, Iowa and Oklahoma. Your Committee has met with the Resettlement Administration officials in Illinois on several occasions to consider the matter. No agreement on a plan has been reached. All of the plans offered so far carry the principle of health insurance and are unsatisfactory partly because of the cut-rate fee fixing factor. No satisfactory plan has been developed. To adopt any of the plans offered would set a precedent and commit the profession to principles deemed unsatisfactory as a general policy. Any plan agreed to with the Resettlement Administration would lend itself to adoption with respect to similar governmental projects that would affect other classes of the population—industrial workers, for example.

Your Committee has no recommendations to offer at this time. Further study and consideration are needed before a definite course of action can be suggested with confidence. In the meantime it would seem wise for each County Society to arrange for a working agreement with the Resettlement Administration wherever the problem arises.

There are about 13,000 client-families of the Resettlement Administration in Illinois. Loans have averaged about $600 per family.

The Resettlement proposals concerning medical care are directly related to the whole problem of medical care for the poor. They must be considered, therefore, with a general policy in mind.

Harold M. Camp, M. D.,
C. H. Phifer, M. D.,
Julius H. Hess, M. D.,
G. C. Otrich, M. D.,
J. S. Templeton, M. D.,
H. A. Felts, M. D.,
Flint Bondurant, M. D.,
John R. Neal, M. D.,
Chairman,
Advisory Committee on Indigent Care.

REPORT OF MEDICAL RELIEF IN CHICAGO

When the act of the Legislature changed the responsibility for the care of the indigent and unemployed on July 1, 1936, the effect of this change in Cook County was that providing relief for Chicago proper became the responsibility of the Council of the City of Chicago, while the suburban areas were the responsibility of their local supervisors.

When this change occurred Chicago was fortunate in securing Mr. Leo M. Lyons, Executive Secretary of the Illinois Emergency Relief Commission as the administrator of Relief for the City of Chicago. Under his supervision the former program that was in vogue in Cook County under the Illinois Emergency Relief Commission was immediately adopted as the program for Chicago, and the Advisory Committee of the Chicago Medical Society was requested to continue in an advisory capacity to his administration.

The institution of WPA has made some change in the number of people to be given medical care. Generally speaking, people on cash relief or WPA are not given medical care. However, in some instances it has been necessary to supplement medical care as well as general relief. Usually clients on WPA have used the clinics and the County physician service.

The number of physicians rendering care to those on relief is about the same as it was under the Illinois Emergency Relief Commission. The personnel of our Local Advisory Committee remains about the same. The Committee still continues its bi-monthly meetings with representatives of the Chicago Relief Administration. At these meetings policies are discussed, reports given on the work done, complaints are investigated, as well as abuse of privileges.

A program for additional obstetrical care has recently been completed. The pay for obstetrical care has been increased from $20.00 to $30.00.

There were, as of April 1, 1937, 227,779 people on relief in Cook County. There are 45,042 employables receiving some type of relief. There are at the present time 69,602 on WPA, of which 60 per cent. are receiving supplementation in some form of relief, as well as medical care. There are 1,427 of this number receiving medical care only.

The Chicago Relief Administration has authorized since July 1, 1936 to April 30, 1937, $149,850.56 for medical care in Chicago. Inasmuch as the suburban areas are not under our supervision this amount compares favorably with previous expenditures.

The relationship between the various social agencies and organized medicine has been constructive.

I believe that the indigent and people on relief, as well as physicians caring for these people, have in Mr. Leo M. Lyons, Administrator, and Mrs. Lucille M. Smith, Director of the Medical Relief Service, two very excellent executives who not only have a knowledge of the social aspect of this problem, but the medical as well. In the opinion of the Committee we are most fortunate in having both of them in their respective positions.

Respectfully submitted,
Charles H. Phifer, M. D.,
Chairman.

REPORT OF SCIENTIFIC EXHIBITS COMMITTEE

To the Members of the House of Delegates:

The Scientific Exhibits Committee is pleased to give the following report.

This is the third year of the life of this Committee. We believe the exhibit has been improved each year and hope everyone attending this meeting will take the opportunity to study the individual exhibits. We invite

the attention of all, expecting you to find something of interest and profit to each.

We call your attention to the fact that many new achievements are shown in this exhibit, and point with pride to them. Scientific medicine is marching on regardless of obstacles. A close study of this exhibit will aid us in our endeavor to keep abreast of the times.

Medals and certificates of merit will again be awarded to the best exhibits.

LIST OF SUBJECTS AND EXHIBITORS

"What the Public is Thinking about Health"—American Medical Association.

"Histology of Irradiated Tumors"—Perry J. Melnick, Decatur and Macon County Hospital.

"The Chemistry and Pathology of Pneumonoconiosis" —Henry C. Sweany, Municipal Tuberculosis Sanitarium, Chicago.

"The Lesion of Lobar Pneumonia; A Clinical and Experimental Study"—Drs. O. H. Robertson, W. D. Sutliff and John P. Fox, University of Chicago.

"Relation of Medicine and Surgery to the Railroad"—James H. Hutton, Illinois Central Hospital, Chicago.

"Research Studies in Morbidity, Mortality and Public Health Organization"—State of Illinois, Department of Public Health, Hon. Henry Horner, Governor, Frank Jirka, Director.

"The Illinois Educational Program in Maternal and Child Hygiene"—State Department of Public Health; Illinois State Medical Society, Harold Hill, Field Consultant.

"The Prevention and Relief of Heart Disease"—Chicago Heart Association, Gertrude Howe Britton, Executive Secretary.

"New Apparatus for the Registering of Heart Sounds" —Edward W. Hollingsworth, M. D., Albert Sorensen, Albert Van den Driesche, Chicago.

"Cancer of the Tonsil, Pharynx and Larynx"—Dr. Max Cutler, Michael Reese Hospital, Chicago.

"Cardiovascular-Renal Diseases"—Louis I. Dublin, Metropolitan Life Insurance Co., New York.

"Tonsillectomy"—Paul A. Campbell, Chicago.

"Exhibition of Poliomyelitis Film"—Illinois State Poliomyelitis Commission, Drs. Jirka, Shaughnessy, Harmon, Tucker and Levinson.

"Hemorrhage—Causes and Treatment"—Drs. Birch and Limarzi, University of Illinois College of Medicine, Chicago.

"Experimental Endocarditis Due to Pressor Reactions" —A. J. Nedzel, Chicago.

"Relation Between Oral and Gastric Bacterial Flora" —Lloyd Arnold, Chicago.

"Clinical Pathologic Correlation"—M. G. Bohrod, Peoria.

"Colorimetric Determination of Serum Magnesium"— W. S. Hoffman, Chicago Medical School.

"Pathology of Tuberculosis and Tuberculin Testing"— Illinois Tuberculosis Association, Dr. Fred M. F. Meixner, President, Peoria.

"Demonstration of the Application of Mecholyl and Electropyrexia"—D. E. Markson, Chicago.

"Measurements of the Peripheral Circulation by the Plethysmograph"—Carl A. Johnson, St. Luke's Hospital and Northwestern University Medical School.

"The Thyrotropic Hormone of the Anterior Pituitary Gland"—Paul Starr and R. W. Rawson, Northwestern University Medical School.

"Clinical Pathological Exhibit of Cardiac Lesions and Multiple Myeloma"—Arthur E. Mahle, Northwestern University Medical School and Evanston Hospital.

"Human Convalescent Serum in Scarlet Fever, Measles, and Poliomyelitis"—Sidney O. Levinson, Michael Reese Hospital, Chicago.

"The Tense Patient in General Medical Practice"— Edmund Jacobson, Chicago.

"Studies in Incidence of Disease in Various Parts of Illinois"—Illinois State Planning Commission, Hon. Henry Horner, Governor; Robert Kingery, Chairman.

"Spondylolisthesis"—Dr. Fremont A. Chandler, Northwestern University Medical School.

"Renal Stone"—Frederick Lieberthal, Northwestern University Medical School.

"The Use of Perirenal Air Injections in the Diagnosis of Certain Adrenal Diseases"—C. H. Drenckhahn, Carle Hospital Clinic, Urbana.

"Fracture Exhibit"—W. J. Potts, Oak Park.

"Collapse Therapy in Pulmonary Disease"—Municipal Tuberculosis Sanitarium, Karl J. Henrichsen, Chicago.

"Carcinoma of the Tongue"—Dr. Frank E. Simpson, Chicago.

Respectfully submitted,
J. S. Templeton, M. D., *Chairman,*
N. S. Davis, III., M. D., *Secretary,*
C. F. Harmon, M. D.,
E. C. Kelly, M. D.,
J. P. Simonds, M. D.,
E. H. Weld, M. D.,
Scientific Exhibits Committee.

REPORT OF CANCER COMMITTEE

To the Members of the House of Delegates:

I have the honor to submit the report of the activities of the Committee on Cancer since our last annual report.

1. During the year the survey of facilities for diagnosis and treatment of cancer in the State of Illinois has been completed by the American Society for the Control of Cancer, and a report has been made by that organization. You will recall that a request by your Committee on Cancer made to the Council of your Society two years ago authorized the making of such a survey. The receipt of this report has been so recent that it has been impossible to study it thoroughly and make recommendations to your Society on the basis of this report. Such a study will be made in the near future and, with your permission, recommendations based upon it will be made by your Committee on Cancer to the Council of your Society.

2. The Committee on Cancer has acted as the Executive Committee of the Women's Field Army against Cancer in Illinois, which has been sponsored

by the American Society for the Control of Cancer. During the week of March 21, 1937, a campaign for enlistment in this Women's Field Army was held in the State of Illinois, as well as throughout thirty-nine other states in the Union. On account of the late date at which the organization for this campaign was started in Illinois it was not possible to inform the medical profession sufficiently concerning the desirable aspirations of this campaign, and this unfortunate condition resulted in the campaign not having attained the success which was hoped for it. However, under the able leadership of Mrs. George Thomas Palmer as State Commander of the Women's Field Army against Cancer in Illinois, a foundation was laid which it is hoped will serve with the support of the medical profession for a more successful campaign in 1938. It is planned that Mrs. Palmer will have an opportunity of presenting this subject to the House of Delegates at this present meeting. In the year to come it will be necessary for the Executive Committee of the Women's Field Army in Illinois to be enlarged and a large Advisory Committee appointed from throughout the state. These subjects will receive the attention of your Committee on Cancer.

3. A study is in progress which it is hoped will result in the formulation of a series of recommendations as to methods of diagnosis and treatment of various forms of cancer. It is expected to make the results of this study available to the members of the Illinois State Medical Society. These results will further serve as the basis for talks on the subject of cancer which will be presented at County Medical Societies throughout the state. Such programs on cancer at County Medical Societies are being arranged in cooperation with the Educational Committee of your Society, and cancer teams are being organized which will be available through the Educational Committee for the presenting of these cancer programs at County Medical Societies.

4. It will be seen from the above report that the activities of this Committee have attempted to cover education of the profession on the subject of cancer, education of the laity on the subject of cancer with the aim of securing earlier diagnosis and treatment, and, thirdly, a definite study of the facilities available in the state for the diagnosis and treatment of cancer which will lead to further recommendations for its improvement.

As Chairman of the Committee it is my pleasure to acknowledge the courtesies which have been extended to the Committee by the administrative officers of your Society and its Council, and of the wholehearted cooperation of the members of the Committee on Cancer. The personnel of this Committee is as follows: Dr. J. P. Simonds, Chicago; Dr. Don Deal, Springfield; Dr. Roswell Pettit, Ottawa; Dr. Gatewood, Chicago.

Respectfully submitted,

Bowman C. Crowell, M. D., *Chairman, Committee on Cancer.*

The President: I have a request that Mrs. George T. Palmer be given ten minutes to make a report on Women's Field Army.

Dr. Mather Pfeiffenberger: I move that Mrs. Palmer be given the privilege of the floor for ten minutes. (Motion seconded by Dr. J. S. Nagel, Chicago, and carried.)

Mrs. George Thomas Palmer, State Commander, Illinois Division, Women's Field Army: May I say in preface that I appreciate the honor and consideration your organization has thrice bestowed upon me in asking me to appear upon your platform. I wish to add, also, that I come before you not as a paid organizer for your Society nor for the American Society for the Control of Cancer but as a purely volunteer worker interested in saving human life. No one connected with the recent cancer drive in Illinois or with the Army has received one cent for her services.

To tell you briefly of this cancer movement: The Cancer Committee consisting of Drs. Crowell, Deal, Pettit, Simonds and Gatewood, was appointed by the State Medical Society in December. This Committee recommended me to the American Society for the Control of Cancer as Commander of the Women's Field Army for Illinois.

At a meeting of the Council in Peoria on January 4, a report from Dr. Crowell, Chairman of the Cancer Committee, was read, and in it he urged the members of the Council to get behind the movement to organize the Women's Field Army in each county. So far as I can learn this was the only formal notice given of your proposed cancer work to the medical profession at that time or until March.

On January 8, I met with the Cancer Committee and we discussed plans of organization and the necessary details of the work. I was given authority to proceed to build up the Army and plan for the Enlistment Campaign of March.

The Army has been organized by the American Society for the Control of Cancer to build throughout the country an enlightened lay group through the dissemination of sound, conservative material on methods of cancer control; in other words, to educate the laity on the facts and fallacies of cancer, the need for early diagnosis by reputable physicians instead of by quacks with their nostrums, to create audiences for medical talks by recognized medical authorities, to aid in reducing the mortality from cancer as has been done in tuberculosis.

The Women's Field Army is indeed an army, organized over a year ago, and now having 39 state units. Your Cancer Committee, together with the State Commander, adopted the medical councilor districts as the unit of organization with Vice-Commanders in charge who should act directly with the individual Councilors. These Vice-Commanders appoint Captains in the various counties and they, in turn, appoint Lieutenants in cities, towns and villages. The plan of organization is a very elaborate one, embracing advisory committees, speakers' bureaus, broadcasts, public meetings, and various methods of arousing public interest and support. Lack of time prevented any detailed organization before the drive, set for March 21-27. This drive for membership or enlistment campaign, was the first and most important objective and

we had just ten weeks to make a try at it in Illinois.

The American Society for the Control of Cancer was most generous in financing the drive but the understanding was that all financial assistance from them would cease as soon as the drive was completed and that the work in the various states from then on must be supported by the individual states. The only way to finance the work was by membership or donations, the same plan used by the Red Cross and the Tuberculosis Association.

The assurance of cooperation on the part of the American Society was more than carried out and the national publicity given to the movement was perhaps more complete than any ever given to any public health movement. Unfortunately, their percentage on funds received in Illinois will not begin to cover the expenses they incurred.

The quota set for Illinois to raise was only $14,000 or two cents per capita. This was very conservative considering we had one of the largest cities in the country. It was also lower, proportionately, than many other states. In the allocation of funds, 70% of all money received is returned to the states for their own work; 20% is retained by the Society for expenses in the field of which we receive our share and 10% is placed in a contingent fund. It was most necessary, then, for the success of future cancer education in Illinois that we raise as much money as possible.

Among my first official acts in January was to consult the Councilors in regard to the selection of Vice-Commanders in their respective districts. I am sure most of them tried to help me. I know they are busy and it is not an easy thing to find women willing to assume responsibility. Most of the Councilors asked me to make my own appointments. The Vice-Commanders were instructed to consult the officers of the various county medical societies in regard to the appointments of Captains. Our aim was to work in harmony with all members of the medical profession; to observe the proper ethics and to create a feeling of friendliness and understanding.

However, we soon began to find a lack of understanding. What I am going to say is not said in a spirit of criticism. I am merely stating a fact when I say that when the Vice-Commanders approached the County Medical Officers most of them did not seem to know anything about the State Society's Cancer Movement. One county president told me on March 3 he had never heard of it. This lack of understanding, due probably to one of several causes, did delay the work of organizing, of course.

I felt that of all the women's organizations the Medical Auxiliary would be the most interested and most helpful. I wrote early asking that they suggest some woman for a position of prominence in your cancer movement. I was told that the Auxiliary could do nothing in the way of endorsement or cooperation until their board met in March which was, of course, too late to be effective. We never have received that endorsement. Why should they have had any doubt about it?

At one of two Auxiliary meetings before which I spoke on your cancer work, one woman said she was frankly suspicious of the whole thing. I hope I took the suspicion, if personal, with becoming grace. However, I did insist on a telephone communication to the County Medical Society, also meeting, to establish my reliability and the legitimacy of your cancer movement. It is not my movement.

On account of this apparent lack of knowledge by the County Medical Societies as to the existence of your cancer movement which I was finding pretty generally, I wrote to the Chairman of the Cancer Committee on March 4, asking if further word could be gotten out to the profession. On March 6, circular letters were sent to all County Medical Societies giving information concerning the Women's Field Army and the cooperation that was needed. However, as that was only fifteen days before the drive began those letters could not have been very effective.

I understand that there are many members of the medical societies who do not approve of the solicitation of funds. I do not understand just how an effective educational program can be carried on without funds. Administrative expense is always necessary. Travel, stationery, etc., have to be paid for and work cannot be done without them. I supplied a room in my home, a typewriter and four months of time gratis for the cancer work; this year I had only a part time stenographer.

Your Cancer Committee directs the spending of whatever money Illinois may have, which today amounts to about $1000—70% of the amount collected up to date and slightly over 10% of our quota. The activities which it was hoped might be supported, included:

1. Maintenance of state headquarters with needed personnel and supplies.
2. Travel of Commanders, Vice-Commanders, Executive Committee and invited speakers and helpers.
3. Purchase of literature, educational items, exhibit materials, etc.
4. Expense of annual enlistment drives, advertising and similar activities.
5. Support of special undertakings in local or state areas, such as special studies in various phases of the problem.

Wisconsin collected four times its quota and their organization preceded ours by only a few weeks but their Cancer Committee had been organized a longer time and their county societies had been sold to the Army idea, apparently. Several factors contributed to our lack of success in Illinois. Shortness of time was our first great handicap. To organize Illinois at all effectively in ten weeks was a physical impossibility. Most efficient women who could and would work ordinarily were already engaged in other organizations. Holy Week seemed a bad time, especially in Chicago.

No organization was possible, even after the most exhaustive efforts, in the fourth, seventh, eighth or tenth districts and not one cent was raised in those districts or in the second. Chicago and Cook County were very disappointing in their results due to circumstances on which I have no time to touch, so that the money raised practically came from the first, fifth,

sixth, ninth and eleventh districts. I have no time to give credit where it is due excepting to say that the little county of Hamilton, after the flood and its demands on them, sent in almost four times its quota and that the ninth, the flooded area, stood third in collections.

There has been justifiable criticism on the part of the profession of medical and public health activities which have been assumed by laymen and lay organizations. The cancer movement is organized so that its control remains entirely in the medical profession through its state and county organizations.

The solution of the cancer problem is one which must be met by the medical profession, and if met adequately, will not become in any sense a question of state medicine. In fact, the solution of the cancer problem is the function of the practising physician and should remain so. It is generally believed that if the problem of ever increasing cancer is met by the organized medical profession with the Women's Field Army as the potential means of publicity it will remain one of the great public health problems which will be met and controlled by the profession itself.

At the close of your campaign for the control of cancer and after the generous expenditure of time and labor and money, with not very gratifying success, we are confronted with the plain and simple question as to what the Illinois State Medical Society desires in the future campaign against cancer. The program for the future is yet to be written and it will be written by your Society as represented in your Cancer Committee. The potential interest in the control of cancer is enormous and can readily be aroused among the laymen of the state by a sincere, earnest and genuinely determined medical profession.

The President: That will be referred to the proper Committee.

REPORT OF SYPHILIS CONTROL COMMITTEE

To the Members of the House of Delegates:

Following the Conference on Venereal Disease Control work, held in Washington, D. C., December 28-30, 1936, Director of Public Health, Dr. Frank J. Jirka, requested the Council to appoint an Advisory Committee to aid the Department in putting on a program of syphilis control in the State of Illinois.

This Committee composed of Dr. Andy Hall, Dr. Harold M. Camp, Dr. Lloyd Arnold, Dr. John J. McShane, Dr. Howard Shaughnessy, and Dr. I. H. Neece, as chairman, has been concerned basically with the ways and means by which the practicing medical profession could unite its efforts most effectively with the public health authorities in bringing to bear upon the problem of venereal diseases the entire professional resources of the State. The relation of the private physician in the Control of Venereal Diseases to the entire program outlined by the United States Public Health Service is deserving of special emphasis to avoid any possible misunderstanding as to the general purpose of the program.

It is the understanding of the Committee that this Public Health Service through the various State Public agencies, is desirous of casting the light of publicity on the whole problem of syphilis to the end that the disease shall be more adequately diagnosed and treated at the hands of private practitioners, as well as, in public hospitals, and clinics, along lines approaching standard procedure where possible, and in accordance with accepted methods.

The Committee suggests that certain standards be maintained concerning all features of the program and should include:

(1) Provision for adequate diagnostic facilities:—Laboratory service for dark field examinations and serologic tests is a first essential in control of syphilis. State should set standards for the performance of such tests to control their accuracy, their continued specificity, and sensitivity, and to see that conditions are maintained which are essential for accurate technique in sero-diagnostic work. It is further recommended that a system of State Licensure or approval for hospitals, institutional, and other private laboratories doing bacteriological, serological, and other work of importance to public health be organized. Careful selection of properly trained and experienced personnel is a fundamental prerequisite to the efficient performance of laboratory tests in the diagnosis of syphilis.

(2) Development of Treatment Facilities:—The necessity for applying treatment in the control of syphilis makes the provision of adequate treatment facilities a measure of the utmost importance in the campaign.

The Committee agreed that clinic service and consultative advice and opinion should be available in urban areas for (a) the diagnosis and treatment of any patient who applies or is referred by a private physician, when necessary to protect the public health or the patient is unable to pay; and (b) any patient who is unable to afford private medical care.

No conflict between clinic and the physician in private practice need be feared with these restrictions, since the planning and development of these activities demands the closest continuous cooperation between the county, local and State medical societies and the health authorities, and since experience has shown that the patient able to pay for private medical care will not submit to the comparative inconvenience, delay and public exposure of clinic attendance.

The major emphasis of the treatment program should be placed on the patient with infectious early syphilis, with the primary aim of reduction in the incidence of the disease.

The personnel of the syphilis clinic should include as an indispensable minimum a director with wide general training in medicine and with special training in the field of syphilis, regardless of the size of the clinic and whether additional medical personnel is necessary. He should be provided with adequate nursing, medical follow-up and clerical help.

In rural communities adequate treatment facilities for indigent patients may be achieved; (a) By subsidizing properly qualified local physicians; (b) By county health officers themselves, provided these health officers have had proper training in the clinical management of syphilis.

For the treatment of early spyhilis, syphilis in pregnancy and latent syphilis the standards which have been set up by the Cooperative Clinical Group in cooperation with the United States Public Health Service are recommended for application throughout the country. The treatment of patients with late syphilis is a problem peculiar to each case. In late syphilis treatment cannot be standardized.

(3) Application of Epidemiologic Principles:—Each early case of syphilis should be investigated, the investigation to include a careful attempt to identify and locate the source of infection, as well as contacts prior and subsequent to infection, and to place such individuals as required under observation and treatment.

The physican in private practice should be urged to attempt to determine the sources of infection of early cases coming to his attention, and to encourage the bringing in of contacts for examination. It is felt, however, that efforts of the physician in this direction must in most instances be supplemented by official action. As syphilis and gonorrhea constitute a public health problem the rights of the community supersede the rights of the individual. The same fundamental principles of control apply to the patients under care of private physicians or public clinics. The application of case holding measures in lapsing patients is also of great importance.

Syphilis reporting should not be limited to the notification of early and potentially infectious cases.

(4) Assistance to the Private Physician:—

1. Free laboratory service.
2. Free drugs for the treatment of syphilis which shall have passed accepted standards of effectiveness.
3. Simple appropriate epidemiologic and morbidity reporting systems including forms which shall carry free mailing service.
4. Facilities for the hospitalization of their indigent and infectious patients who may require such care.

(5) Informative and Educational Activities:—First an informative program among physicians, and second educational work in the civilian population. Informative activities among physicians should include the following activities; (a) The postgraduate instruction of practicing physicians, particularly those who will serve in clinics or who as private physicians will take an active part in the campaign. (b) An attempt to bring as much influence as possible upon medical schools within the States to modify the curriculum within such schools with regard to the teaching of public health aspects of syphilis control. (c) The provision of consultation service within or without the personnel of the State Health Department in order to serve clinics or physicians in private practice who have an active part in the campaign. (d) The distribution of informative literature to physicians in private practice.

The educational program in the civilian population should in addition include up-to-the-minute radio talks, the distribution of pamphlets, the loan of motion pictures to public meetings, authoritative statements prepared for the press and popular exhibits.

(6) Legislation:—Most of the State Health Departments have been empowered to control the venereal diseases by the enactment of various laws. It is important that the State law should clearly specify or authorize the State Board or Department of Health to declare that syphilis, gonorrhea, and other infections coming within the meaning of the term venereal diseases are dangerous to the public health and subject to rules and regulations of the Board. Penalties for violating health laws should be made definitely applicable to violation of these rules and regulations. Notification of these diseases is essential.

Isolation and quarantine should be applicable to these diseases, but should be adapted to the scientific facts and circumstances relating to each case and to those persons likely to be exposed to infection.

It is desirable also to set forth in some detail regulations governing epidemiological investigations with due regard to confidential relations of physicians and patients and avoidance of publicity.

Respectfully submitted,

I. H. Neece, *Chairman,*
H. M. Camp, *Secretary,*
Andy Hall,
Lloyd Arnold
J. J. McShane
H. J. Shaughnessy.

Advisory Committee on Syphilis Control.

REPORT OF COMMITTEE ON RELATIONS TO PUBLIC HEALTH ADMINISTRATION

To the Members of the House of Delegates:

This Committee calls to your attention the work of Dr. Frank J. Jirka, head of the State Department of Public Health. He has functioned so well in this position, that Illinois finds herself in a more favorable position in her operation under the Social Security Act, than that in some other states.

Dr. Jirka had ideas differing from those in authority at Washington, and was so insistent, that he was able to win his point.

Under the directorship of Dr. Jirka, the medical profession has received thorough consideration. He has at all times consulted his Society, especially through the Council on matters concerning the health of the people, and has followed the suggestions of this organization.

This Society is most fortunate, as are the people of this State, in having Dr. Jirka as their Director of Public Health.

This Committee appreciates his cooperation, and stands ready to assist him in any matter with which we might be concerned.

Respectfully submitted,

Frank F. Maple, M. D.,
Chairman,
Frank Heda, M. D.,
Thomas Meany, M. D.,
Bernard Klein, M. D.,
Lee O. Frech, M. D.

Committee on Relations to Public Health Administration.

REPORT OF CONSTITUTION & BY-LAWS COMMITTEE

To the Members of the House of Delegates.

The Committee on Constitution and By-Laws finished its assignment for the revision of the basic of the Society, and reported to the House of Delegates in June of 1936.

This report was duly examined, checked, passed upon, and adopted by the House at the last annual meeting. The printed result is now available for the members of the Society.

In studying the past history of the Society for this revision, it was discovered that the present body was amalgamated with a previous State Medical Society which had been organized in 1840, and has had, therefore, a more or less continuous organic existence since that date.

Your committee is therefore presenting to this body a resolution suggesting that the date of organization on the official seal be changed from 1850 when the amalgamation occurred, to 1840 when the Society was originally organized.

Respectfully submitted,
Charles B. Reed, M. D.,
Chairman,
E. H. Weld, M. D.,
R. K. Packard, M. D.
Constitution and By-Laws Committee.

REPORT OF COMMITTEE ON PHYSICAL THERAPY

To the Members of the House of Delegates.

I beg to report that after a questionnaire sent to practically all the medical schools to which students from Illinois attend, we find that they give no uniform course of instruction in physical therapy.

Some schools give no course at all, some but very little, and some quite extensive. In some schools it is optional, and in some it is compulsory.

I have met with some members of the committee and other physicians who are intensely interested in physical therapy, and it is our opinion that there is a great lack of knowledge among the ordinary physicians concerning the good that can be derived from physical therapy measures when scientifically applied.

It is also our opinion that much valuable information could be disseminated if the medical societies would occasionally have some physician appear on their program who is qualified to discuss physical therapy measures.

High powered salesmen have induced many physicians to spend hundreds and thousands of dollars upon apparatus that is practically useless in curing or relieving human ailments. If it were possible to secure men qualified to lecture on physical therapy each county society should have a program of this kind at least once a year, but so far as we can learn, very few men are qualified to give a worthwhile lecture on physical therapy.

Respectfully submitted,
Andy Hall, M. D.,
Chairman,
Bernard Fantus, M. D.
D. H. Levinthal, M. D.,
Hugh E. Cooper, M. D.,
Rudolph Mroz, M. D.,
F. Flinn, M. D.,

REPORT OF THE EDITOR

To the Members of the House of Delegates:

The cry of the hour in medical journalism today is that same principle for which the official organ of your society,—The Illinois Medical Journal—has been fighting for the last quarter of a century,—recognition of the verities of medical economics and the right of scientific medicine to practice without lay interference or diversion, or corruption by vested interests.

There is cause for rejoicing in the ranks of The Illinois State Medical Society, that in this pivotal postulate of the ethical, scientific, medical profession, our corporate body has marched in the van. While others "Cried, 'Peace, Peace' where there is no Peace," The Illinois State Medical Society stood alert and fully awake to the dangers of such Barmacide feasts as misguided foundations and endowments, bureaucratic control of medical practice, regimentation, pseudo-maternity legislation and all other allied mockery of state medicine.

For several years past this society and its Journal have luxuriated in the possession of superbly able department of medical economics. By radio, by lay and by scientific press, and by every means of communication known to civilized man, this section of the society has labored to extend the word of warning to the world. There is no doubt but that the spirit of socialism, and of communism is making of scientific medicine the blood offering on its altars,—or in other words, the economic scapegoat.

As has been said in the Journal for over two decades, the ancient and honorable science of medicine with its responsibilities and its prowess is its own excuse for its own authority. Sacrifice of hundreds of thousands of its disciples in the service of their fellowmen merits recognition. Usurpation of their divine right by the laity has been among the crimes of the century, and for its anti-Americanism stands unsurpassed.

Apart from this economic policy, the Illinois Medical Journal continues as a scientific beacon.

Papers published in its pages during the past twelve months have upheld its reputation as a mirror of contemporary medical progress. By their contributions of this nature medical men of high repute have made our periodical an outstanding repository of much matter of moment that is at once both highly original and of greatly stimulating interest, as well as of scientific import and record of progress.

That the Illinois Medical Journal as a medium of

publicity enjoys a considerable degree of popularity otherwise than in the parent State is evidenced by the fact that nearly two score scientific papers from outstanding medical authorities in Eastern States and in other localities have been offered for publication in the ILLINOIS MEDICAL JOURNAL during the past year.

Too, there has been a marked interest in the Journal as a medium for propaganda by medical supply concerns from all over the country with a resulting increase of revenue during the last twelve months.

While the ILLINOIS MEDICAL JOURNAL enjoys a blanket circulation throughout the state, and is received with approbation in numerous outside headquarters of contemporary scientific knowledge, recognition must be acceded to the fact that the medical mouthpiece of our organization is to a certain extent, and that, too, a lamentable extent,—a blazer of trails. As soon as "medical economics" became vogue, the charlatans took up the scent. We are surrounded today by scores of pseudo-ethical campaigns, sadly mislabelled as "medical economics," and which have already known secret baptisms at the hands of socialistic and communistic quacks. "Reports," "symposiums" and "surveys" are quite the fashion. While these extend the right hand to the cause and the birthright of medicine, within the left is held the hammer and sickle. So subtle is the gesture with which this concealment is maintained that only the eye of experience and the ear attuned to the rhythm of the marching feet of the hordes of the invader, grasp its importance. Winnowing the wheat from the chaff the earnest, ethical medical man finds himself adrift in a sea of euphemisms that emphasize the tenets of all that medicine should not be. For this sea of words, this ocean of fine phrases, tends to nothing so much as to engulf the entire medical profession into that combination of frustration, defeat and decadence known as bureaucratic control of the mother science as vested in State Medicine and Compulsory Health Insurance.

The State is not equipped to practice medicine. This "Compulsory Health Insurance" of which we are now hearing and reading so much on every side yields no crop of either "health" or of "insurance." It does create jobs for medico-politicos. It does increase the tax upon the already overburdened citizen trying to support both his family and his government. It does sacrifice eithical science and its practice.

There is also a tremendous amount of pressure being exerted against the medical profession for a revision as to medical education and its allied handmaid,—the hospital situation. Perhaps the wisest comment upon all this may be made in the words of the average citizen chosen for any civic emergency duty,

"Why pick on me?"

Why pick on medicine? Always medicine has ably and cheerfully done its part and more than its part. Why the medical rather than the legal profession, or why any profession rather than commercial interests, should be chosen to expound and to promote the false doctrines of socialism and communal dependence rather than that sturdy individualism that has built up the great American nation, is to any thinking physician as much a mystery as that eternal problem of the whys and wherefores of birth.

There would seem to be no fair play in this current insistence upon the part of the laity to dominate the medical profession and the practice of the science of medicine. Endowed foundations have done marvelous work in the realm of research. Why, then, must this rich pail of milk be kicked over by the obvious determination to exterminate medical initiative, medical proficiency and medical birthright?

Since this situation exists, and since it is apparent to the most obfuscated medical fogy, it well behooves the medical profession to band together to crush the hand that menaces. Organization must be fought with organization. No matter what fine sounding title may pretend to mask the iniquities of these moneyed but misguided philanthropists who are far more interested in disbursing "free" medical attention—at an increased tax levy!) than they are in handing out "free" bread-and-butter or "free" lodging, their aims and their construction are the same. Why not compulsory "bread insurance"? The healthy but hungry and homeless citizen concerns this crowd not at all, even though statistics show that in spite of influxes of foreign elements, thanks to the American standards of living and general sanitation, the American nation ranks as one of the healthiest in the world.

They are well organized, these phalanxes that are out to slaughter scientific medicine. In conclusion, your editor, who has made a lifetime study of the principles and purposes animating these enemies of Americanism and of science, would urge upon you; (1), complete distrust of any so-called "reform" in medicine that tends to an increase of over-centralization of power in Washington or of any increase in Federal discrimination as to the practice of medicine; and (2), any faith in federally supported medical jurisdiction; and (3), complete repudiation of any such tendencies by so coherent and staunch an organization that its force will be felt, not only at the polls but through the columns of the world's most influential mouth-piece, the lay press.

Respectfully submitted,
Charles J. Whalen, M. D.,
Editor.

The President: The Secretary tells me there is no unfinished business, so we will pass to the introduction of resolutions.

Dr. P. R. Blodgett, Chicago Heights: I wish to introduce the following resolution:

1. *Annual Dues for the Coming Year*

Resolved, that the dues shall be set at five dollars for the coming year.

(Signed) P. R. Blodgett
William D. Webb.

Dr. E. C. Kelly, Peoria: I wish to introduce the following resolution:

2. *Resumption of Publication of Illinois Statistics Concerning Mental Diseases*

WHEREAS, a knowledge of the condition of the public health is necessary to the medical profession, and

WHEREAS, a knowledge of the mental health of the community constitutes a part of this knowledge, and

WHEREAS, the State of Illinois has in its possession the means, and the only means, of assembling statistics relating to mental disease in Illinois, and

WHEREAS, such statistical reports are regularly issued by other states for the information of the medical profession—as well as many others who are vitally interested, and

WHEREAS, it was for years the custom of the state to issue such statistical reports upon mental disease at regular intervals,

Be it resolved, that the Illinois State Medical Society does request herewith of the Governor and the Director of the Department of Public Welfare that this information be made available within the ensuing year in a separate publication—according to past custom—and from thence on at yearly intervals.

Dr. G. Henry Mundt, Chicago: I have a resolution from the Woman's Auxiliary.

3. *Program for the Woman's Auxiliary*

WHEREAS, the Woman's Auxiliary to the Illinois State Medical Society and its component County Auxiliaries are to be guided in their activities by the Advisory Committee to the Woman's Auxiliary to the Illinois State Medical Society and the component County Auxiliaries, and

WHEREAS, there seems to be a lack of conformity to the general purpose of the Auxiliary, and the work it should do, and

WHEREAS, the medical profession of the Illinois State Medical Society are not adequately acquainted with the work and purposes of the Auxiliary, therefore

Be it resolved, that the Advisory Committee of the Illinois State Medical Society of the Woman's Auxiliary to the Illinois State Medical Society outline the general policy of the activities for each ensuing year of the Auxiliary, and that the Advisory Committee to the Woman's Auxiliary of the component county societies outline and approve the activities of the component County Auxiliaries.

Be it further resolved, that the report of the work and activities of the Woman's Auxiliary to the Illinois State Medical Society be included in the printed report compiled by the Secretary of the Illinois State Medical Society, and that the report be given to the House of Delegates by the Chairman of the Advisory Committee to the Woman's Auxiliary to the Illinois State Medical Society.

Dr. T. H. Culhane, Rockford: I wish to introduce the following resolution:

4. *Practice of Medicine by Nurses*

WHEREAS, in the state of Illinois for many years it has been the practice of many industrial organizations, factories, mills and insurance companies to employ physicians and surgeons to care for the injured and ill; that the above-mentioned organizations also employ nurses to assist physicians and surgeons in the care of accidents and disease and to do first aid work, and

WHEREAS, many of the above organizations have almost supplanted physicians and surgeons except in severe cases and instead have employed nurses; that the said nurses visit the homes of male and female workers; prescribe and deliver medicine; administer hypodermics and vaccines; do dressings at home and remove imbedded foreign bodies from eyes; and instead of doing only first aid work have continued to dress infected wounds; in many such cases antitetanic serum would have been administered had the surgeon been called; the nurses for insurance companies prescribe for patients without the advice or consent of the physicians, and

WHEREAS, the foregoing being true and believing that many nurses in this state are practicing medicine without authority, therefore

Be it resolved, by the Winnebago County Medical Society that the foregoing be referred to the Committee on Resolutions of the Illinois State Medical Society at their convention in Peoria, Illinois, in May, 1937, for their consideration and that same be presented to the delegates of said meeting for their consideration and action.

(Signed)

Winnebago County Medical Society.

Dr. C. S. Skaggs, East St. Louis: I wish to introduce the following resolution:

5. *Practice of Medicine by Corporations*

WHEREAS, the Supreme Court of the State of Illinois has unanimously declared that the practice of medicine by corporations is illegal in this state, and

WHEREAS, this law as decided by the Supreme Court is flagrantly and openly violated by various corporations which are practicing medicine in this state, and

WHEREAS, the Medical Society of the State of Illinois has spent much time and money in bringing this question to an issue and has called upon the proper authorities to enforce the law, and

WHEREAS, it is the duty of the Director of Registration and Education to institute proceedings and to direct prosecution of corporations that are thus violating the law which has been definitely upheld by the Supreme Court, therefore

Be it resolved, that the Illinois State Medical Society in annual meeting assembled, hereby calls upon the properly constituted authorities, namely, the Governor of the State, the Attorney General of the State, the Prosecuting Attorneys of the various counties, and the Director of Education and Registration to take such action as the enforcement of the law requires, and therefore,

Be it further resolved, that the Medical Advisory Committee bring this dereliction of duty to the attention of the Department of Education and Registration.

Charles B. Reed
Charles E. Humiston
John R. Neal

Dr. P. R. Blodgett: I wish to introduce the following resolution:

6. *Amendment to By-Laws, Chapter VII—Duties of Officers*

New Section: No officer of this Society shall accept employment in or appointment on the board of any corporation practicing medicine or with any hospital insurance or medical insurance plan, company or corporation, unless and until the same shall have been approved by the House of Delegates of the Illinois State Medical Society. The violation of this provision shall constitute a resignation from the office to which elected.

P. R. Blodgett
William C. Doepp

Dr. E. S. Hamilton, Kankakee: I have a resolution that was passed by the Missouri State Medical Society which I would like to present with the suggestion that the Resolution Committee approve the resolution.

7. *Establishment of a Council on Medical Ethics and Economics by the American Medical Association*

WHEREAS, there are unmistakable indications that compulsory health insurance and other phases of state medicine are among the plans of our Federal Government, and

WHEREAS, the public and some members of the medical profession have sufficient knowledge of the consequences of such services, and

WHEREAS, adequate scientific medical treatment of the sick and afflicted is our first consideration, and

WHEREAS, such projects involve the appointment of physicians and surgeons, which should be done in accordance with the recommendations of the American Medical Association, and

WHEREAS, the State Associations and ultimate county unit societies have demonstrated their inability to properly discipline their members, therefore

Be it resolved, that the American Medical Association shall establish a Council on Medical Ethics and Economics for a thorough study of the entire situation and everything which it might entail, give widespread publicity to all the phases of its activities, and

Be it further resolved, that the by-laws and regulations of the American Medical Association be so amended that this Council on Medical Ethics and Economics may also investigate alleged unethical conduct which may be brought to its attention and prosecute the apparent violations before the Judicial Council of the Association for ultimate disposition as to innocence or guilt, with either exoneration or punishment, and

Be it also resolved, that our delegates be instructed to present this action to the House of Delegates of the American Medical Association at the Atlantic City Meeting in June, 1937.

This resolution was adopted by the Missouri State Medical Association in Annual Session at Cape Girardeau, Mo., May 10-12, 1937.

Dr. G. C. Otrich, Belleville: I have a resolution to offer, though it is not quite in form. Do you all happen to know that you are responsible

for every technician you hire who is working in any hospital, and that any hospital listed as a charitable institution cannot be sued, and that you are the responsible individual? My experience with this came about when a new anesthetic apparatus was installed in the hospital and there was a question concerning the safety of the apparatus. A representative of an insurance company in which I carry a policy gave me this information. Eight states in the United States have laws that the institution is responsible for its employes, but Illinois has no such law. I think it would be advisable for the Legislative Committee to have some bill drawn up, wherein the institutions and not the individual doctor will be responsible for technicians employed therein.

The President: You may bring in any resolutions by Thursday morning, excepting amendments to constitution and by-laws, which must be read here today in order to be acted upon Thursday morning. If there is no further business I will entertain a motion for adjournment.

Dr. E. S. Hamilton, Kankakee: I move that we adjourn until nine o'clock Thursday morning, central standard time. (Motion seconded and carried).

SECOND SESSION

Thursday Morning, May 20, 1937

The Thursday morning session was called to order at 9:30 A. M. by the President, Dr. R. L. Green, Peoria.

The President: The first order of business will be the report of the Credentials Committee.

Dr. C. B. Ripley, Galesburg: The Credentials Committee has seated 86 delegates, 42 down state, 29 Chicago Medical Society, and 15 members of the Council, a total of 86.

Dr. F. O. Fredrickson, Chicago: I move that the report be accepted and that these delegates constitute the House of Delegates for this session. (Motion seconded by Dr. C. E. Wilkinson, Danville, and carried).

The President: The next order of business will be the reading of the minutes of the last session.

(The Secretary read the minutes and it was moved by Dr. C. E. Wilkinson, Danville, that the minutes be accepted as read, seconded by Dr. F. O. Frederickson, Chicago, and carried).

The President: The next order of business will be the election of officers. Nominations are in order for President-Elect.

Dr. A. E. Walters, Springfield: I wish to nominate for President-Elect, Dr. Samuel E. Munson of Springfield.

Dr. J. S. Templeton, Pinckneyville: I move that the nominations be closed and that the Secretary be instructed to cast the affirmative ballot for Dr. Munson as President-Elect. (Motion seconded by Dr. V. A. McClanahan, Aledo, and carried).

The ballot was cast and the President declared Dr. Munson elected.

The President: Nominations for First Vice-President are in order.

Dr. Leslie Rutherford, Peoria: I wish to nominate Dr. E. C. Kelly of Peoria. (Seconded by Dr. S. E. Munson, Springfield).

Dr. George W. Post, Chicago: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Kelly. (Motion seconded by Dr. E. E. Davis, Avon, and carried).

The ballot was cast and the President declared Dr. Kelly elected.

The President: Nominations are in order for second Vice-President.

Dr. Robert H. Hayes, Chicago: I wish to nominate Dr. T. D. Doan of Palmyra. (Seconded by Dr. J. W. Long, Robinson).

Dr. Mather Pfeiffenberger, Alton: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Doan. (Motion seconded by Dr. Robert H. Hayes, Chicago, and carried).

The ballot was cast and the President declared Dr. Doan elected.

The President: Nominations are in order for Secretary.

Dr. E. P. Coleman, Canton: I wish to nominate Dr. Harold M. Camp of Monmouth to succeed himself. (Nomination seconded by several).

Dr. E. S. Hamilton, Kankakee: I move that the nominations be closed and the President instructed to cast the affirmative ballot for Dr. Camp as Secretary. (Motion seconded by Dr. Mather Pfeiffenberger, Alton, and carried).

The President cast the ballot and declared Dr. Camp elected.

The President: Nominations are in order for Treasurer.

Dr. W. E. Kittler, Rochelle: I wish to nominate Dr. A. J. Markley, Belvidere, to succeed himself. (Seconded by Dr. V. A. McClanahan, Aledo).

Dr. C. E. Wilkinson, Danville: I move that the nominations be closed and the Secretary be instructed to cast the affirmative ballot for Dr. Markley. (Motion seconded by Dr. E. P. Coleman, Canton, and carried).

The ballot was cast and the President declared Dr. Markley elected.

The President: Nominations are in order for Councilor of the Third District.

Dr. L. E. Day, Chicago: I wish to nominate Dr. J. S. Nagel to succeed himself. (Seconded by Dr. Robert H. Hayes, Chicago).

Dr. G. H. Mundt, Chicago: I move that the nominations be closed and the Secretary instructed to cast the affirmative ballot for Dr. Nagel. (Motion seconded by Dr. G. W. Post, Chicago, and carried).

The ballot was cast and the President declared Dr. Nagel elected.

The President: Nominations are in order for Councilor of the Fourth District.

Dr. E. E. Davis, Avon: I wish to nominate Dr. E. P. Coleman of Canton to succeed himself.

Dr. P. J. McDermott, Kewanee: I wish to second the nomination of Dr. Coleman and to move that the nominations be closed and the Secretary be instructed to cast the affirmative ballot for Dr. Coleman. (Motion seconded by Dr. Mather Pfeiffenberger, Alton, and carried).

The ballot was cast and the President declared Dr. Coleman elected.

The President: Nominations are in order for Councilor of the Fifth District.

Dr. A. W. Meyer, Bloomington: I wish to nominate Ralph P. Peairs, Normal. (Seconded by Dr. A. E. Walters, Springfield).

Dr. V. A. McClanahan, Aledo: I move that the nominations be closed and the Secretary be instructed to cast the affirmative ballot for Dr. Peairs. (Seconded by Dr. Walters and carried).

The ballot was cast and the President declared Dr. Peairs elected.

The President: Nominations are in order for Councilor of the Seventh District.

Dr. L. O. Frech, Decatur: I wish to nominate Dr. I. H. Neece, Decatur. (Seconded by Dr. C. E. Wilkinson, Danville).

Dr. E. S. Hamilton, Kankakee: I move that the nominations be closed and that the Secretary be instructed to cast the affirmative ballot for Dr. Neece. (Motion seconded by Dr. Frech and carried).

The ballot was cast and the President declared Dr. Neece elected.

The President: Nominations are in order for Councilor of the Eighth District.

Dr. Edward J. Wheatley, Danville: I wish to nominate Dr. C. E. Wilkinson, Danville, to succeed himself. (Seconded by Dr. W. E. Burgett, Bement).

Dr. L. O. Frech, Decatur: I move that the nominations be closed and the Secretary be instructed to cast the affirmative ballot for Dr. Wilkinson. (Motion seconded by Dr. A. E. Walters, Springfield, and carried).

The ballot was cast and the President declared Dr. Wilkinson elected.

The President: Nominations are in order for four delegates to the American Medical Association for two years.

(Nominations were presented in each case and the following delegates elected).

Charles B. Reed, Chicago; Charles S. Skaggs, East St. Louis; C. E. Wilkinson, Danville; W. E. Kittler, Rochelle.

The President: Nominations are in order for alternate delegates at large, four to serve for two years and one to fill the unexpired term of Dr. R. J. Coultas, deceased.

(Nominations were presented in each case and the following alternate delegates at large elected).

Frank L. Brown, Chicago; E. P. Coleman, Canton; E. H. Weld, Rockford; C. W. Carter, Clinton; T. B. Williamson, Mt. Vernon, to fill the unexpired term of Dr. Coultas.

The President: Nominations are in order for members of Standing Committees.

(Nominations were presented in each case, the Secretary instructed to cast the affirmative ballot and the President declared them elected).

The following Committees were elected:

Public Relations: W. S. Bougher, Chicago, H. W. Woodruff, Joliet, and F. H. Mueller, Chicago.

Medical Legislation: John R. Neal, Springfield, Mather Pfeiffenberger, Alton, and M. J. Hubeny, Chicago.

Medico-Legal: (Two members elected for

three years) A. H. Geiger, Chicago, and R. O. Hawthorne, Kankakee.

Medical Education and Hospitals: N. S. Davis III, Chicago, W. R. Marshall, Clinton, and H. O. Munson, Rushville.

Relations to Public Health Administration: E. H. Blair, Chicago, Thomas Meany, Chicago, L. O. Frech, Decatur, A. Gansevoort, Chicago, and Bernard Klein, Joliet.

The President: The next order of business is to fix the per capita tax for the coming year.

Dr. P. R. Blodgett, Chicago Heights: I move that the assessment for the ensuing year be set at five dollars. (Seconded by Dr. P. J. McDermott, Kewanee).

Dr. C. S. Skaggs, East St. Louis: I am under the impression that if we are going to go on and have a State Society that is functioning we have to have some money, and if we do not we are going to be paying out ten times as much. There is no question in the world but what in the next year there will be introduced into the legislature a state medicine bill. If the laity is not against it it is going to pass. I think we would do well if we had dues of $50.00 in the next year. I move as an amendment that the dues be raised at least three dollars. We need money with which to do things. Look at the state of New York, they have paid $25.00 dues and they have convinced their people that state medicine is a bad thing for the laity. We can only do it with money and we cannot do it without. I would say that the dues should be raised to eight dollars.

Dr. E. S. Hamilton, Kankakee: Speaking on the amendment, I think those that have followed the finances of the Society for the last year, feel that the men who are introducing this motion are not acquainted with the facts concerning our Society or are without information as to what is going on in this country. I have been accused of being a little bit hip on this. For us to have any effect on molding public opinion, an assessment of five dollars is simply ridiculous. The labor unions pay $25.00 to $50.00 a year, the osteopaths pay $25.00 to $50.00 a year, the chiropractors pay $50.00 to $100.00 a year. A few years ago we cut down the dues because times were hard. I did not hear that any county society reduced its dues. If I am wrong I will be glad to have you correct me. They have all carried on with approximately the same annual dues. We have gone into our surplus, and we are not doing one-third of the work that we should do. We have not scratched the surface in influencing public opinion in Illinois. If we are going to combat things that are coming up, we have to have money. In Wisconsin a bill in favor of state medicine is being introduced. If we are going to influence the laity we have to put out a lot more propaganda. I cannot help but think that any man can afford to pay seven, eight or ten dollars.

Dr. S. E. Munson, Springfield: As Chairman of the Legislative Committee from the Council of the State Society, I want to give you some information. I am not trying to influence you men to have the dues raised. I live in Springfield and I know what the osteopaths and chiropractors do, and, gentlemen, if you do not pay it in dues you are going to have to pay it to prevent those people putting over legislation that we do not want. We can afford to go down into our pockets to prevent repeal of the medical practice act. Knowing the money that comes in to help defeat the medical practice act, you men cannot afford not to pay, and you must stand with John Neal in every way. Just as Dr. Hamilton said, the labor unions pay more. The Hodcarriers' Union recently opened an office on my floor and they pay $40.00 to $50.00 a year.

Dr. P. R. Blodgett, Chicago Heights: This question resolves itself around the very principle which it resolved around when we reduced our dues from $7.00 to $5.00. I have studied the auditor's report and I assume it is correct. We have a reserve of $107,000. That is approximately the same as when we were paying $7.00 dues. There was practically no loss of revenue as far as I know this year. I want to commend the Council for the efficient manner in which they handled their affairs. I only wish that the County of Cook and the State of Illinois, and the national government had been handled on the same efficient basis. We have a situation that faces us which is entirely different from the situation that faces the chiropractors, the napropaths, and the various labor unions. Ours is a legitimate business and we do not have to pay tribute for the job. We have $107,000 in our reserve fund, little if any less than what was in the reserve when we reduce our dues.

There is no apparent reason for raising the dues at this time. We have that reserve and God knows what money may be worth a year from now or two years from now. A reserve is built for defense purposes. That reserve is here. There is no apparent reason when that reserve has not been touched why we should increase our dues.

There is another question that will come before us today, that is the question of the disposition of the duties of our Medico-Legal Committee. If those duties are curtailed, then the money allotted for that purpose must of necessity be curtailed. We have another thing, if we curtail the activities of our Medico-Legal Committee and that is this, we have to go back to our individual membership throughout the State of Illinois and in many instances resell them on some of the things that accrue to them as benefits of our State Society. When that medico-legal protection is dropped or curtailed, then we have curtailed one activity of our State Society which means so much to a great many members. There is no use comparing our organizations with these cults or with labor unions. There is this reserve which can be used if necessary. When the Council has seen fit to do that and in the interests of the Society it becomes a question of using the reserve for the benefit of the Society, then I am perfectly willing that we raise our dues, but with a reserve of over $100,000 and with a Council that is very judicious in the expenditure of our money, I can see no reason for danger. I move that the amendment be tabled.

Dr. Frank P. Hammond, Chicago: Hearing no second to the motion, I rise to discuss the amendment. It has been stated that we should not compare ourselves to the cults. That very statement, gentlemen, I feel is deserving of comment. We should consider them probably not deserving of much comparison but if there is comparison we should be on a more solid basis than they are. It has only been mentioned not to consider them in our branch of the healing art but only from a financial standpoint. I should like to consider as a comparison that we are as interested in the great practice of medicine as the cults are. I am one of the common people and I believe that our dues should be $25.00. I am speaking for the amendment. I see men sitting around me who are thinking that five dollars is enough. If there are problems coming up which are community problems our reserve of $107,000 will not go very far. Let us have that stability behind us. Do not let our reserve be decreased, for the moment it is decreased we lose the psychology of security. The man who can throw out his chest and hold up his chin is the man who has a bank account. You men who consider holding the dues down to a depression state should all know that if there is a depression our Society can function if it has a financial security.

Dr. J. S. Nagel, Chicago: All this oratory will not change one delegate. I call for the question.

Dr. P. R. Blodgett, Chicago Heights: I move that the amendment be tabled. (Seconded by Dr. William C. Doepp, Blue Island).

(The vote was taken by acclamation and lost).

Dr. Blodgett: I call for a standing vote.

(A standing vote was taken; 13 were in favor of tabling the amendment and the balance of delegates were for the amendment to raise the dues to $8.00).

The President: I declare that the motion to table is lost. We will now vote on the motion as amended, making the dues $8.00 per year. (Motion as amended carried).

The next order of business is the selection of a meeting place for 1938.

Dr. A. E. Walters, Springfield: In behalf of the Sangamon County Medical Society, the city of Springfield, its Mayor and the Chamber of Commerce I invite you to Springfield.

Dr. C. E. Wilkinson, Danville: I move that we accept the invitation to Springfield. (Motion seconded by Dr. A. E. Walters, Springfield).

Dr. L. O. Frech, Decatur: I move that the invitations be closed and the Secretary cast an affirmative ballot for Springfield as the meeting place for 1938. (Motion seconded by Dr. George W. Post, Chicago, and carried).

The President: The next order of business is the report of the Reference Committees.

COMMITTEE ON REPORTS OF OFFICERS

Dr. Mather Pfeiffenberger: On the report of the President we have nothing to criticize or commend other than its brevity.

In the report of the Secretary we would like to call attention to the fact that we are increasing our mem-

bership very rapidly. Since this report was sent in your Secretary has informed me that the membership has increased 2.3%. One item in this report is the gift offered to this organization by Dr. C. E. Black, consisting of 150 cuts of most of the early past presidents and prominent workers in the State Society. Dr. Black offers this with only the proviso that we have a safe place in which to deposit it. Your Chairman talked to Dr. Black and his suggestion would be to turn this over to the Editor of the Journal who would have the cuts available in case he needed them for use. Your Committee recommends that this gift be received from Dr. Black and deposited with our Editor.

There is no comment on the Treasurer's report, as it is evident from the figures presented, and the report has been audited by a certified public accountant. Neither is there any attention to be called to the report of the Chairman of the Council.

We wish to submit this as the report of the Committee.

(Signed) Mather Pfeiffenberger,
Chairman,
George W. Post.

Dr. C. E. Wilkinson, Danville: I move that the report be accepted and placed on file. (Seconded by Dr. A. E. Walters, Springfield, and carried).

COMMITTEE ON REPORTS OF COUNCILORS

First District.—We regret the defeatist attitude of this report regarding Public Health work and State Medicine. We recommend that physicians take a strong attitude toward private practice and individual medicine.

We agree that members of Medical Societies should be encouraged to participate in and take an active interest in scientific and economic medicine but do not endorse the recommendation of the Councilor on renewal of licenses, either by examination or otherwise, at stated intervals.

Otherwise, we endorse the report.

Second District.—We endorse this report, and particularly that part which deals wih the sponsorship of and participation in crippled children's clinics by the County Society, and further we would broaden the scope of participation to include handicapped children, particularly the mentally handicapped.

Third District.—We endorse the report and commend that portion which deals with seeking better enforcement of the Medical Practice Act.

Fourth District.—We endorse this report.

Fifth District.—We endorse this report.

Sixth District.—Your Committee cannot agree with that portion of this report on suggestions that doctors refuse service where medical bills are not paid.

We recommend that medical service be rendered to all the sick and ailing, but that some definite arrangements for compensation be made, in such cases, either through individual payment or through agency cooperation.

With the exception of the above criticism, we endorse this report.

Seventh District.—We endorse this report.

Eighth District.—We endorse this report and commend the Councilor on his activities in unifying his district.

Ninth District.—We endorse this report and offer praise for the physicians of the Ninth Councilor District for their unstinted services to the flood victims.

Tenth District.—We endorse this very complete report and commend the physicians of this district on their flood activities.

Eleventh District.—We endorse this report and commend this Councilor on his activity.

Councilors-at-Large.—We endorse the reports of the Councilors-at-Large except for that portion which deals with activities which concern the attitude of one component society, and in regard to this phase, we feel that it is without the sphere of this committee to pass either affirmatively or negatively on this section of the reports.

Summary.—We feel that the reports of the Councilors are, on the whole, very excellent, but have the following constructive criticisms to make:

1. That where statistics are included in the report, they be tabulated in as brief a manner as possible so as to conserve space and time.
2. That the report be written as concisely as possible in order to make it less time consuming and more valuable.
3. That only the necessary data which pertains to the activities of himself and his societies be included in his report.

That all philosophizing and irrelevant material be omitted from the report in order that the essential facts of his activities will be apparent without too much effort upon the part of the membership; also, that the reports will be read by more members.

Respectfully submitted,
L. O. Frech, *Chairman*
N. S. Davis III
Albert W. Meyer

Dr. L. O. Frech: I move the adoption of the report. (Motion seconded by Dr. A. E. Walters, Springfield, and carried.)

COMMITTEE ON REPORTS OF STANDING COMMITTEES

Dr. Charles H. Phifer, Chicago: I have not been notified of a meeting of the Committee.

COMMITTEE ON REPORT OF COUNCIL COMMITTEES

Dr. G. H. Mundt: The Committee recommends the approval of the reports as printed.

Dr. L. O. Frech, Decatur: I move the adoption of the report. (Motion seconded and carried.)

COMMITTEE ON REPORT OF SCIENTIFIC WORK, SOCIAL SECURITY PROBLEMS, THE EDITOR AND HISTORIAN

Your Committee has given careful study to the report of the Editor and takes pleasure in endorsing it in every detail.

The Committee congratulates the Society upon its good fortune in having had for so many years an Editor of its Journal who possesses those rare qualifications of literary talent, the ability to detect the cleverly masked schemes designed to attenuate our professional potency and the courage to expose them and analyze their effect upon both the public and the medical profession.

We especially concur in his opinion that the health interests of the community can best be served by physicians whose individual initiative is unhampered by too much centralized authority no matter where it may be vested, and that only through organization, concerted action and eternal watchfulness and exposure can these devastating measures be prevented.

Each Section officer should be highly complimented upon the thorough arrangement of their program, and especially the combined sessions. On Tuesday, May 18, five sections were in session, two of which, Obstetrics and Gynecology, and Pediatrics, were overcrowded.

Respectfully submitted,
G. M. Cushing
E. C. Kelly
Ernest E. Davis, *Chairman*

Dr. Davis: I move the adoption of this report. (Seconded by Dr. E. C. Kelly, Peoria.)

The Secretary: The final count of delegates present at the session is 93.

Dr. H. A. Beam, Moline: A year ago this reference committee made the recommendation that the second volume of the Medical History of Illinois be completed. I would like to know what has been done.

Dr. C. J. Whalen, Chicago: No progress has been made since the depression in getting out the second volume, and since Dr. Zeuch's death there does not seem to be anyone who can do it. It has concerned me very much of late. The material is on hand and it should be brought out.

Dr. Beam: I asked this because 75% of the doctors in our community ordered the two volumes, paid their money, and I think we should seriously keep that in mind.

Dr. N. S. Davis, III, Chicago: I would suggest that a Committee be appointed to cooperate with the permanent historian to obtain someone to do this work and finish it up as promptly as possible. I would make such a suggestion in the form of a motion that a committee of three be appointed to cooperate with the historian and to ask the Council for an appropriation necessary to complete this work.

Dr. G. H. Mundt, Chicago: I would like very much to second the motion but I think it should not be handled in that way. I think it would be better if we suggested to the Council that it consider this matter and try to bring it to a conclusion. For that reason I move that this mater be referred to the Council of the State Medical Society with the suggestion that if feasible the second volume be completed. (Motion seconded by Dr. I. F. Harter, Stronghurst, and carried.)

(The motion to accept the report of the Reference Committee carried.)

REPORT OF COMMITTEE ON RESOLUTIONS

Dr. T. H. Culhane, Rockford: The Committee wishes to submit the following report:

1. *Annual Dues for the Coming Year.* (See Page 85.)

This resolution has been acted upon under the order of business, fixing the per capita tax for the coming year.

2. *Meeting of Secretaries' Conference Apart from Annual Meeting*

WHEREAS, the Secretaries' Conference has been an official meeting at each annual session of the Illinois State Medical Society for many years, and

WHEREAS, the officers of the Conference have endeavored each year to arrange a program of material and constructive interest to all officers of County Medical Societies, which should draw a decent attendance at the meeting, and

WHEREAS, the Secretaries' Conference in 1937 was again poorly attended, having been scheduled at a time when five other meetings were in progress, therefore

Be it resolved, that the House of Delegates of the Illinois State Medical Society in regular session recommend to the Council that arrangements be made for holding the 1938 annual Secretaries' Conference as a separate meeting, to be held preferably in Chicago as an all-day meeting, and that all officers of county medical societies be urged to attend the meeting, and

Be it further resolved, that the Council be urged to allow the necessary traveling expenses of all component society secretaries who attend the Conference, as is done in Indiana, Wisconsin, Minnesota, and in other states.

(Signed) J. W. Long, *Chairman*
D. D. Monroe, *Vice-Chairman*
A. R. Brandenberger, *Secretary.*

Dr. Culhane: The Committee voted not to approve this resolution. for the following reasons. In the first place, we feel that the secretaries of component societies should be educated at home and should be instructed by members to attend this Conference. Second, as far as Chicago is concerned, we feel that Chicago is not the proper place to go, because of the distance from the southernmost part of the state. Third, Chicago is a bad place in which to hold a convention of doctors. I talked with one of the leading physicians of this Society and he recalled an incident in which at a regular meeting of the Society held in Chicago, there were not twenty doctors present to hear a very prominent speaker, and during his address the fire department went by and they all rushed to the window. I move that this resolution be not approved. (Motion seconded by Dr. F. P. Hammond, Chicago, and carried).

3. *Membership in County Societies of all Physicians Employed by the State of Illinois.*

Resolved, that physicians on duty in all hospitals and departments under control of the State of Illinois be required to apply for and if accepted, maintain membership in a county medical socicty of the State.

(Signed) D. D. Monroe, Secretaries' Conference.

Dr. Culhane: I move that this resolution be referred to the Council for proper procedure. (Motion seconded by Dr. R. H. Hayes, Chicago, and carried).

4. *Approval of Action of State Department of Registration and Education in Campaign Against Quacks.*

WHEREAS, the State of Illinois through the Department of Registration and Education is conducting a strenuous campaign against quacks and violators of the Medical Practice Act, and

WHEREAS, such campaign has resulted in many convictions, thus protecting the citizens of the state against such law-breakers, therefore

Be it resolved, that the Illinois Medical Society in annual convention assembled, hereby approves the action of the Department of Registration and Education in this laudable movement, and

Be it further resolved, that this Society extend its thanks to Governor Horner and Director John J. Hallihan for their untiring efforts in upholding the Medical Practice Act and that a copy of this resolution be sent to the Governor and the Director of the Department of Registration and Education.

(Signed) John R. Neal.

Dr. Culhane: I move the adoption of this resolution. (Motion seconded by Dr. E. S. Hamilton, Kankakee, and carried).

5. *Practice of Medicine by Nurses*

(See Page 45)

In addition to the resolution as it appears on page 87, the Committee added the following:

WHEREAS, it appears to be the custom of many industrial concerns in the industrial centers of the State of Illinois of employing nurses to attend the injured and ill employes, and

WHEREAS, many of the said nurses are not operating directly under the supervision of a licensed physician, and

WHEREAS, in the process of said procedure injured employes are not sent to or attended by a licensed physician until after a complication has arisen, therefore

Be it resolved by the delegates of the Illinois State Medical Society assembled in convention at Peoria this twentieth day of May, 1937, that such methods of employing nurses to attend sick and injured individuals are in violation of the Medical Practice Act of the State of Illinois, and furthermore

Be it resolved, that the Council of the Illinois State Medical Society take such action as is necessary under the laws of the State of Illinois to put a stop to such unlawful practices.

Dr. Culhane: I move the adoption of this resolution. (Seconded by Dr. W. E. Burgett, Bement, and carried).

6. *Practice of Medicine by Corporations.*

(See Page 46)

Dr. Culhane: I move the adoption of this resolution. (Seconded by Dr. C. O. Lane, West Frankfort.)

Dr. W. E. Kittler, Rochelle: It seems to me that this is a wordy motion. I may be wrong but I would like to see that resolution referred to the Council with power to act and also to the Legislative Committee. I would offer that as an amendment.

Dr. C. O. Lane: I second the amendment.

Dr. Charles E. Humiston, Chicago: This resolution came in as a regular resolution in the regular way and is properly being handled by the Resolutions Committee. This same report came in last year and as Chairman of the Committee I assumed that our work was done and that the Supreme Court had said, "well done, go ahead and do it." It was the duty of the officers of the state to have enforced this law. Why it has not been done we are not sure, but we suspect why. The Council of the State Society has done its duty. It has provided the funds for making this fight. The Council of the Chicago Medical Society has contributed liberally to this fight. By unanimous consent the State Supreme Court says this is a good law. It is up to every doctor in the state of Illinois to ask why this law is not enforced. This resolution asked that the Medical Practice Act be enforced. We have already declared our attitude, the Council has done its duty, and with all the force and effect of law the Supreme Court has come to the rescue and said the law is good. That closes every avenue of malfeasance of those who offend under the Medical Practice Act. They cannot appeal because the Supreme Court has ruled and the local courts are being bound by that decision of the Supreme Court. What is the matter? It is up to you. It did not seem to me as Chairman of that Committee that we had any further duties, but we have it again brought to the attention of the House of Delegates, and public sentiment is in favor of the medical profession's being defended in this law. Once more we are bringing it to the attention of the State Society and we hope to get public sentiment a little better behind it, that we may have the medical practice act enforced. It will remove many ills from which we suffer.

Dr. G. H. Mundt, Chicago: I thoroughly agree with Dr. Humiston in the things he has said. I think there would be considerably more effect to have this come from the Legislative Committee rather than the Council, and for that reason I move that the amendment be laid on the table. (Seconded by Dr. P. R. Blodgett, Chicago Heights.)

Dr. W. E. Kittler: With the consent of the seconder, I am willing to withdraw the amendment.

The President: The amendment has been withdrawn, and the motion before the House is to adopt the resolution. (Resolution adopted.)

7. *Establishment of a Council on Medical Ethics and Economics by the American Medical Association*

(See Page 46)

Dr. Culhane: I move the adoption of this resolution. (Seconded by Dr. C. S. Skaggs, East St. Louis).

Dr. G. H. Mundt, Chicago: On the whole I would be in sympathy with this resolution, but we are trying to shift to the parent body the privilege of bringing charges of unethical conduct. It has been many times stated that the county society is the court of last appeal. I think it will be a fallacy to recommend to the

House of Delegates that a Committee of the American Medical Association be empowered to bring charges of unethical conduct against its members. The county societies and the state societies should stand firmly that this is their business. I should prefer that the Committee recommend that this be referred to the Council. I believe that the Council can change that around so it would be much more enforcible. I make this as a substitute motion, because I am certain that I am right.

Dr. G. C. Otrich, Belleville: I am on this Resolutions Committee and I am a corresponding member of the St. Louis Medical Society in which this resolution originated. I do not know how many of you, probably very few, have read your code of ethics as printed in the constitution and by-laws, but there are places, particularly in the case of contract surgeons (See Contract Practice, page 19 of Code of Ethics of A.M.A.) in which there is quite a loophole, and these men in St. Louis want a correction in that particular section of the Code of Ethics. You will find many violations particularly around the larger cities. I think it is a good resolution and I should like to see it adopted.

Dr. N. S. Davis, III, Chicago: I think Dr. Mundt was slightly in error in one of his statements. I think cases of unethical conduct can be tried originally before the Judicial Council of the American Medical Association, and that is the case in which a member in one state prefers charges against a member in another state, and also if a member of one county society will prefer charges against a member of another county society, they can come before the Judicial Council.

Dr. W. E. Kittler, Rochelle: I move that this resolution be referred to the Council. (Seconded by Dr. Mundt.)

Dr. Culhane: They are not asking us to introduce this resolution, but simply to support it.

(Motion as amended, to refer the resolution to the Council, is carried).

8. *Program for the Woman's Auxiliary*

(See Page 45)

Dr. Culhane: This resolution has been carefully considered by the Committee and discussed with many members. We feel that if we approve it and recommend its adoption we may be initiating something that should arise from the Woman's Auxiliary and not from the State Society. Therefore, we recommend that it be referred to the Council and I so move. (Seconded by Dr. G. H. Mundt, Chicago, and carried.)

9. *Resumption of Publication of Illinois Statistics Concerning Mental Diseases and Crime.*

(See Page 45)

Dr. Culhane: The Committee suggests the addition of the words "and crime", to the title, and recommends the adoption of the resolution. I so move. (Motion seconded by Dr. G. C. Otrich, Belleville, and carried.)

10. *Amendment to By-Laws, Chapter VII—Duties of Officers.*

(See Page 46)

Dr. Culhane: This resolution has been fully considered. I would like to ask Dr. Hammond to discuss it.

Dr. Frank P. Hammond, Chicago: The Committee feels there are two reasons why we recommend rejection. The first is, we feel the resolution is looking back in retrospect; that is something that has been settled in the state of Illinois. The component societies and the State Society have in the past preferred charges against men working for corporations practicing medicine. Those men have either resigned or have been suspended from membership.

The second part, "or with any hospital insurance or medical insurance plan," apparently refers to the more or less new hospital and medical insurance plans that are operating now in the states of Texas, Missouri and New York. Our information is that in those states they are operating under the approval of the medical societies. It appears that this has reference somewhat to Illinois, where there are such plans in operation but which have not yet received the approval of the medical organization, so we feel the makers of the resolution are looking into the future and anticipating, and we feel until those plans are declared unethical, in which instance charges could be preferred by members of any component society of the State Society and handled in that way, that the resolution as presented should be rejected, and handled as if and when those occasions should arise.

Dr. J. S. Nagel, Chicago: I move that this resolution be tabled. (Motion seconded by Dr. F. P. Hammond, and carried.)

Dr. H. A. Beam, Moline: Our county society is now considering hospital insurance, and they are very much up in the air. It has seemed to me that this is a propitious time to bring it up.

The President: There is a place to bring it up under new business.

11. *Publicity for This Meeting*

WHEREAS, it has been authoritatively stated that the publicity for this meeting has been the best this Society has ever enjoyed. Especially should the Press be commended for their 100 per cent. cooperation. There has been no presumption but perfect willingness to help in every way possible, therefore

Be it Resolved, that the Secretary be instructed to convey to the responsible parties the thanks of this body.

Dr. C. B. Ripley, Galesburg: I move the adoption of this resolution. (Motion seconded by Dr. J. S. Nagel, Chicago, and carried.)

12 *Gift of Dr. Carl E. Black*

Resolved, that the Secretary be instructed to convey to Dr. Carl E. Black our sincere thanks for his generous gift to our Society.

Dr. C. B. Ripley: I move the adoption of this resolution. (Motion seconded by Dr. Mather Pfeiffenberger and carried).

Dr. Robert H. Hayes, Chicago: I move that the report of the Resolutions Committee be adopted as a whole. (Motion seconded by Dr. C. E. Humiston, and carried.)

REPORT OF COMMITTEE ON MISCELLANEOUS BUSINESS

Dr. Leslie Rutherford, Peoria: We have had only one matter before us and that will be taken up by the Committee on Constitution and By-Laws.

REPORT OF COMMITTEE ON CONSTITUTION AND BY-LAWS

Dr. Charles B. Reed, Chicago: This resolution was presented by our Medico-Legal Committee and endorsed by our attorney, who is strongly in favor of it. It means that the Constitution and By-Laws must be changed by the substitution of a certain paragraph in place of the one that now exists in regard to the employment of lawyers. It is the result of the action of the American Bar Association that is being promulgated with regard to the practice of law by corporations. I shall read the resolution, which has been endorsed by the Medico-Legal Committee, the legal adviser, and the Committee on Constitution and By-Laws. I move its adoption. (Seconded by Dr. J. R. Ballinger, Chicago.)

Dr. G. H. Mundt, Chicago: I rise only on one point. I think that the Chairman of this Committee will agree with me that we should say "and/or until his successor shall be elected."

Dr. Reed: We accept that. The resolution now reads:

Be it resolved, that the By-Laws of the Illinois State Medical Society be and are hereby amended, as follows:

Strike out all of Section 6 of Chapter IX of said By-Laws, except the first paragraph thereof, and insert in lieu of said portion so stricken out the following:

It shall be the duty of the Medico-Legal Committee of this Society to elect a chairman on the last day of each annual meeting, such chairman to hold office until after the next annual meeting of this Society and/or until his successor shall be elected. Said Committee shall make such rules for the conduct of the affairs entrusted to it herein as may be proper for the management of its business; and it shall keep a record of all claims and suits coming to its notice against its members and may inquire into and investigate such claims, shall prepare statistics showing, as far as possible, the number and character of such claims, and may assist in any lawful and proper way in the preparation of the defense of any claims or suits or civil malpractice presented or brought against any member of this Society in good standing, provided such member shall request the aid of said committee, shall make a report of its activities to the House of Delegates at the annual meeting and a report to the Council each year at the January meeting.

Dr. J. R. Ballinger: As I spoke before the House of Delegates on Tuesday concerning the attitude and decision of the Legal Department of the American Medical Association, it is my belief that the resolution should be adopted. I have a letter received this morning from Dr. Woodward, Chairman of the Legislative Committee of the American Medical Association. It is simply a review of the propositions I gave to you on Tuesday concerning the happenings before the American Bar Association and the complaint against the Ohio State Medical Society. I would like to read the conclusions and give you an understanding of what this proposition means.

CONCLUSIONS AND SUGGESTIONS

The judgment of the joint committee of the American Bar Association on the issues between the Ohio State Medical Association and the Committee on Unauthorized Practice of Law of the Ohio State Bar Association makes it necessary for every state medical association to examine its plan of medical defense, if it has one, in the light of the answers given by the committee. To that end, counsel for the state medical association should be consulted. Out of the statement of facts and the briefs filed in this case, out of the arguments, and out of the decision of the joint committee, one who is reasonably familiar with the medical defense activities of our several state medical associations and with the medical and legal ethics and the law relating to them, might draw the following conclusions:

1. Medical defense committees of state medical associations are not per se unlawful or unethical. They should limit their activities, however, to the field of medicine. Such a committee may have the advice of counsel employed by the association to guide it in its own deliberations, since the association as an entity is interested in the work of the committee; but counsel so employed cannot act as counsel for a defendant-member of the association unless employed by the member for that purpose, voluntarily and without any inducement or pressure by the association or its committee. A medical defense committee may give advice to any member of the association who is threatened with a suit or sued concerning the medical aspects of the case, but it cannot serve as a medium for the transmission of the advice of its own counsel to the defendant-member or his counsel.

2. A state medical association may assist its members who are threatened with demands for damages because of alleged malpractice. The association may examine evidence submitted to it by a member on whom demand has been made. If the patient who has made the demand is willing to submit evidence to the association, it may receive and examine such evidence. On the basis of the evidence received and of its own investigations, a medical defense committee can determine whether the conduct of the defendant-physician was in keping with the local standards of professional practice, having in mind time, place, judgment, representations of the defendant-physician to the public as to his qualifications, and other matters.

3. If a sate medical association finds that the defendant-physician has not conformed to the standards of the medical profession and his patient has been injured as a result, it may notify him that it will not cooperate in his defense. It may, however, by supplying the necessary medical evidence, assist him and his counsel in effecting an equitable adjustment outside the courts.

4. If a state medical association finds that the defendant-physician has conformed to local standards of practice, or that he has not done so but that this patient has not been injured, or that his patient has been injured but that the demands are unreasonable, the

association can cooperate with the defendant-physician in the defense of his case by furnishing expert witnesses and advice and by cooperating with counsel employed by the defendant-physician.

5. A state medical association cannot furnish legal advice to a defendant-physician, either directly or through counsel employed by it, and it cannot ethically, by any device, control the conduct of counsel employed by the defendant-physician. The association, however, in the absence of anything in its constitution and by-laws to the contrary, can refuse to cooperate in the defense of any case, however meritorious, for any reason that seems to the association sufficient.

6. In attempting any readjustment of medical defense activities, a state medical association must take into consideration not only the principles stated above but also the rights of such of its members as are already defendants in malpractice suits and as have availed themselves of the services of the medical defense committee; of such of its members as may hereafter be made defendants in malpractice suits because of alleged malpractice that occurred before the medical defense plan was reorganized; and of members who, although not suffering from or threatened by malpractice suits, are entitled to consideration because of their contributions to the medical defense fund, directly or through deductions made from the annual dues paid by them. These matters should be adjusted in the light of the constitution and by-laws of the association. No general advice concerning them can be given.

7. A state medical association may perform any of the functions named above through a committee on medical defense or through any other lawful agency that it deems proper.

8. In studying the medical defense organization and activities of any state medical association and in reorganizing them if they are to be reorganized, care should be taken to avoid bringing them within the purview of the insurance laws of the State.

9. In formulating any plan for the modification or reorganization of its medical defense activities, a state medical association should be guided by the best legal advice obtainable.

(Signed) William C. Woodward, *Director,*
Bureau of Legal Medicine and Legislation
American Medical Association.

This applies to any case of malpractice that occurred during the statute of limitations. The question comes up whether the State Medical Society should not defend any case up to the time it was discontinued.

Dr. Reed: I move that the recommendation of the Committee be concurred in. (Seconded by Dr. G. W. Post, Chicago, and carried.)

Dr. Mather Pfeiffenberger, Alton: I move the adoption of all these reports as a whole. (Motion seconded by Dr. G. W. Post, Chicago, and carried.)

The President: We now come to new business.

Dr. H. A. Beam, Moline: This hospital insurance plan has been bobbing up in scattered sections of the country, and the State and county societies have been asked to put the stamp of approval upon it. We know in a general way in Rock Island County that the American Medical Association and the State Society have not been favorable to it, but laymen come in and try to organize these hospitals and they talk to the medical society and if they do not get our immediate approval they go ahead, and organize anyhow. We have three hospitals, one in Rock Island and two in Moline; two are opposed to this hospital insurance and the third one is trying to get the support of the medical profession. The doctors do not know where we stand. They feel as do the editors of the ILLINOIS MEDICAL JOURNAL and the *Journal of the A.M.A.* that this is a stepping stone to something we do not want. I am sorry that that resolution was tabled. I think it should be threshed out and in this House of Delegates, if possible, get an expression of opinion to take back to our county societies.

Dr. S. E. Munson, Springfield: This is very much advocated in Springfield and in Sangamon County. I invited Dr. R. G. Leland to come and give a talk, because I am acquainted with a group that is trying to organize one of our hospitals. We invited that group to meet with us and Dr. Leland gave an address. He is perfectly familiar with about 57 varieties of hospital insurance. He discussed those at this time and the preponderance of the lay group who were with us have not had anything to say about it since. Some of our hospital officials who were interested have not taken any action. We also had Dr. Leland come to Bloomington and give a talk. As far as I know the same situation is present in Bloomington, and I think the question is settled there. Another thing, it would appear to me that it would be an excellent thing in view of Dr. Beam's question if this were referred to the Council, because unless you have thought a great deal about it, it would take a great deal of time to discuss.

Dr. L. O. Frech, Decatur: I want to say a brief word. Whether hospital insurance is good or bad is a question not to be discussed here. I think that has to be decided by the local communities and hospitals, but one thing should be considered definitely where such plans are proposed. I do not believe that any hospital insurance should be organized that is run by laymen. Second, if those plans are organized it is the feeling of most medical men that the board of supervision should be in the hands of medical men, that is, that the majority should be medical men and it should be under the control of the local county medical society.

Dr. P. R. Blodgett, Chicago Heights: I move that this House of Delegates not approve of any hospital insurance at this time. (Motion seconded by Dr. H. A. Beam.)

Dr. Blodgett: This brings us back to the fundamental object of the profession of medicine which was contained in the amendment I presented to this House and which was not considered. We are here in the interest of those that we represent. Here is a plan or a scheme or a set-up which takes, in part at least, a part of the practice of medicine away from the profession and puts its direction in a lay board. We discussed this very thoroughly in the Council of the Chicago Medical Society and a committee was appointed to go into the matter. We could not approve of it and we finally discharged the committee that had it under consideration. This is another one of those things that continue

to spring up and make more and more inroads into the practice of medicine at the expense of private practice. We had a situation in Chicago some years ago where we were led to believe that the Chicago Public Health Institute could be made ethical. To that end a committee was appointed by the Chicago Medical Society to investigate, and while this advisory committee continued to function our hands were tied as far as any disposition of that case was concerned. Here is another lay organization interested not at all in the problems of the man who is sick and certainly interested not at all in the problems of private practice. We have seen these things come and go, and certainly this House of Delegates must take some steps, otherwise this innocent little kitty that appears to run loose in every community will grow more and more and will become a real problem in the practice of medicine. We have seen the same thing in the body politic, and we have seen members of corporations stalking up and down the halls of our legislative bodies. This question comes from the rank and file of the Illinois State Medical Society. It is not a small voice in the wilderness, it is an echoing and re-echoing until it becomes thunder. We must stop this or the practice of medicine will become controlled by lay people and then we will have a problem that we cannot handle here or anywhere else. We might discuss this for a long time, but there is only one thing, the only stand we can take is to support the resolution before the House.

The President: The question is called for. (Motion is carried.)

Dr. N. S. Davis, III, Chicago: The Scientific Exhibits Committee reports the following awards:

Class I.

Silver Medal: Paul Starr and R. W. Rawson: "The Thyrotropic Hormone of the Anterior Pituitary Gland. Bioassay by Graphic Analysis of Hyperplasia in the Guinea-Pig Thyroid."

Bronze Medal: O. H. Robertson, W. D. Sutliff and John P. Fox: "The Lesion of Lobar Pneumonia: A Clinical and Experimental Study."

Certificates of Merit: Perry J. Melnick and Albert Bachem: "Histology of Irradiated Tumors."

Henry C. Sweany: "The Chemistry and Pathology of Pneumoconiosis".

C. H. Drenckhahn and Cesare Gianturco: "The Use of Perirenal Air Injections in the Diagnosis of Certain Adrenal Diseases."

Class II.

Silver Medal: Harold D. Palmer: "Pathology".

Bronze Medal: Sidney O. Levinson, Elizabeth Penruddocke, Albert M. Wolf: "Human Convalescent Serum-Preparation, Administration and Evaluation in Scarlet Fever, Measles, and Poliomyelitis."

Certificate of Merit: Milton G. Bohrod: "Clinico-Pathologic Correlation."

Class III.

Silver Medal: State of Illinois, Department of Public Health: Hon. Henry Horner, Governor; Frank J. Jirka, Director: "Research Studies in Morbidity, Mortality and Public Health Organization."

Bronze Medal: Fred M. F. Meixner, the Illinois and Peoria County Tuberculosis Associations: "Pathology of Tuberculosis and Tuberculin Testing. Technique of Diagnosis in Youth."

Certificates of Merit: Chicago Heart Association, Gertrude Howe Britton, Executive Secretary: "The Prevention and Relief of Heart Disease."

State Department of Public Health; Illinois State Medical Society, Harold Hill, Field Consultant: "The Illinois Educational Program in Maternal and Child Hygiene."

I move the adoption of the report. (Motion seconded by Dr. W. E. Kittler and carried.)

The President: This scientific exhibit has grown from a small exhibit originated by the late Dr. E. P. Sloan, who showed a handful of specimens to its present proportions.

The President: This completes the business.

A year ago you elected Dr. Packard to be your President-elect. He has attended all the meetings and has conducted a lot of missionary work throughout the state, which is a part of the duties of the President-elect. I am sure you all know him favorably and well in his duties, and it is with a great deal of pleasure that I present to him this gavel. I hope, Dr. Packard, that you have as pleasant a year as I have. I wish to present you with this gavel and to declare you the President of the Illinois State Medical Society.

Dr. Rollo K. Packard: This has been the first opportunity that I have had to express my appreciation to the House of Delegates for the honor that has been conferred upon me in electing me to this high office. I think one who has had the privilege of sitting in the House of Delegates and listening to all the discussion pro and con relative to the various problems that confront medicine today must accept this office with a very keen sense of responsibility in the discharge of his duties. I am aware that we are living in a changing world and that many new and difficult problems are presenting themselves for our consideration and our settlement, and I can only hope and ask that the members of the medical profession of the state of Illinois will accept this responsibility individually, because, after all, it is not a one man's job. I have said that we have in Illinois 7,400 doctors, all of whom are creating public opinion. I think that is the most potent force we have in molding public opinion. I am sure, Dr. Green, that I will

do my best to follow in your footsteps and in the footsteps of the men that have preceded me.

On motion duly made and seconded, the House of Delegates adjourned *sine die* at 11:45 A. M.

CHRONIC ZINC INTOXICATION: AN INSTANCE OF CHRONIC ZINC POISONING FROM ZINC CHLORIDE USED IN THE PILLOW MANUFACTURING INDUSTRY

Ernest S. du Bray, San Francisco (*Journal A. M. A.*, Jan. 30, 1937), presents a case for its interest as an unusual source of probable chronic zinc intoxication in the pillow manufacturing industry. The portal of entry of zinc in this case was believed to be absorption through the skin of the hands and forearms after occupational exposure of these parts to zinc chloride over a period of several years. The inhalation source of intoxication was unlikely, because the temperature produced in the renovator was not sufficient to volatilize zinc in appreciable quantities. From the nature of the zinc chloride and the carelessness that had been exhibited in the exposure of the hands and forearms to this chemical, it was obvious that the patient had ample opportunity, over a period of four years, to absorb toxic amounts of zinc. Clinically, the picture presented was not unlike some of the instances recorded by McCord in his study of chronic zinc intoxication. At the time when the author examined the patient it appeared that he was improving. The blood changes were not so striking as they were about three months previously when he quit working. In the meantime he had had treatment for anemia, and he had not been further exposed to zinc. In association with improvement of the blood picture, symptomatic improvement had occurred, as manifested by increased appetite, gain in weight, disappearance in bone pains and subsidence of all gastro-intestinal disturbances. The case occurred in an industry in which no previous record of zinc intoxication can be found.

SANDYGRAMS

Dinna spend money on drink, but aye keep a corkscrew.

A gentleman asked a poor old Scot:

"Sandy, how's the world treating you?"

"Very seldom, sir, very seldom."

Mrs. McTavish ran into the house in great excitement crying, "John, John, there's a cow in the garden."

"Dinna stand there wastin' valuable time," replied John, "go back to the garden and milk it, and then chase her down the road."

A Scotch traveling salesman, held up in the Orkney Islands by a bad storm, telegraphed to his firm in Aberdeen: "Marooned here by storm, wire instructions."

The reply came: "Start summer vacation as from yesterday."—*Exchange.*

ACCIDENT statistics show that the most dangerous place in an automobile is the seat beside the driver. Divorce Court records prove it to be a dangerous place, too.

VIVISECTION

Here let me frankly face criticism that has been directed against the methods of our laboratories, and has resulted in a most lamentable impediment to the advance of medicine. Without experiment on living animals, that advance, already greatly hampered, cannot continue. I recognize and endeavor to understand the motives which animate powerful bodies of noble and highly gifted men and woman who are opposed to experimental methods.

No right-minded man ever wishes to inflict suffering upon man or animal. That is abhorrent to us all. Opposition to animal research, I firmly believe, is based upon lack of appreciation and understanding; as it is certainly supported by grievous and, I think, unpardonable misstatement. Day by day for many a year it has been my happy duty to operate on men, women and children, who now number of goodly company, in order to save life or bring relief. My heart is full of compassion. I cannot bear to cause or even to hear of suffering. Every one who has experience of laboratory work knows how little pain in inflicted, and what steps are always taken to minimize or abolish it. Yet the slight distress we must occasionally impose in our work upon man is greater in intensity, and far more protracted, than any suffered in our laboratories. It is simply not the truth to say that pain is wantonly, or unavoidably, inflicted there. The experimenter who excites suffering defeats his own aims, for pain changes the issues he seeks to discover.

Physiologists and surgeons are the most humane of men. The necessities of their work would impose this quality, if it were not already possessed. The whole anti-vivisection campaign, though a great testimony to the tenderness of heart of its supporters, has no slightest foundation in truth, and is a witness to their shut-mindedness and credulity.

—Lord Moynihan, in "The Advance of Medicine."

WHERE TO PUT IT

Lena Svenstrum had worked for two years for a certain family of high social aspirations and had been kept quite busy. Finally it was decided that all members of the household must be vaccinated, but the question came up, where to vaccinate Lena so it would not interfere with her work.

"How about an arm?" asked the doctor.

"I'm afraid she would not be able to do the dusting and other housework," said the lady of the house.

"The leg should be the place then," suggested the doctor.

"That would interfere too," objected the lady, "because she has to get down on her knees every day to do the scrubbing."

"Well," exclaimed the M. D., scratching his head, "I don't know, I'm sure, just where to vaccinate her so it won't interfere with some of her work. Have you any suggestions, Lena?"

"Vell," replied Lena, pondering deeply. "Ay don't get mooch time to sit down."

Original Articles

MEDICINE AT THE CROSSROADS

ROLLAND LESTER GREEN, M. D.
PEORIA, ILL.

The honor of serving you through an eventful year has rewarded me with a full measure of genuine pleasure. It has inspired me with renewed confidence and faith in the high purpose of scientific medicine and in the unalterable loyalty of the medical profession to the solid humanitarian principles which dictate to physicians their attitudes and policies with respect to the treatment of illness and the prevention of disease. I have been concerned, however, with the potentialities of sinister forces which have projected themselves into the social consciousness and which seek to effect radical changes that foreshadow neither public advantage nor the maintenance or improvement of professional standards in medical care.

Medicine appears to have arrived during the year at the crossroads of the future. Fundamental readjustments in the social structure which may exercise profound influence over the trend of thought with respect to medical practice have taken place. The Federal Social Security Act, providing unemployment insurance, old age pensions, financial aid to various classes of dependent people, hospital and medical care for physically handicapped children and a great extension of public health service throughout the nation, has become an actuality. A far-reaching law regulating the relation of capital and labor has been validated by the supreme Court. The granting of financial aid to agricultural interests has become an established governmental function. The United States Public Health Service conducted a census of chronic illness among a million people with the end in view of formulating policies and programs concerning medical care. A new inquiry into the status of hospital facilities and medical care has been conducted by a voluntary agency, the American Foundation. The report of that study, very recently off the press, has stimulated nation-wide editorial comment in news papers and professional journals.

President's address at Annual Meeting of Illinois State Medical Society, at Peoria, May 19, 1937.

These events can no longer be classed as straws in the wind. They are the thunderbolts of public opinion which announce that the precipitation of changing social practice has arrived already. The angry cloulds of greater and more fundamental changes still darken the horizon of the social order. Whether or not medicine is swept before the wind without regard for the principles which must be maintained in order that society may enjoy the best that medical science and skill can provide, will depend largely upon the course which the profession chooses to steer and the unity with which its energy is exerted.

Events of the year have brought into public prominence three distinct phases of the socio-medical problems that warrant special consideration. These are, 1, the professional standards of physicians, 2, the public health service, and 3, compulsory health insurance. I shall discuss each of these phases in the light of its importance on the course that organized medicine should pursue.

Professional Standards.—Through the efforts of the Illinois State Medical Society, a definite standard of qualifications for the practice of medicine was established by law in Illinois on July 1, 1877. Since that time the Society has succeeded in raising the standards constantly to keep pace with the rapid accumulation of new scientific knowledge. This has been accomplished not only through amendments to the medical practice act but through the functioning of the State medical examining committee, the development and work of the Education Committee of the Society, the activity of the Legislative Committee which has prevented the enactment of vicious laws, the publication of the ILLINOIS MEDICAL JOURNAL and the scientific programs conducted by the State and local societies. These activities are designed not alone to bring into the ranks of the profession only those who are properly equipped by training to utilize wisely the modern store of knowledge but to improve the qualifications of older practitioners. The significant importance of this function of organized medicine was impressively described on February 14 at the Northwest Medical Conference by a dean who declared that a physician who had not taken a post-graduate course of study within five years is an old-timer.

To those of us who graduated from medical college before the turn of the century, the importance of post-graduate study, of refresher courses and of the scientific programs of the local and state societies is particularly striking. During our professional lives we have witnessed greater and more profound progress in the upward surge of scientific medical knowledge and skill than took place in all the centuries that went before. Since 1900 practically all of the complicated science of nutrition has been developed, endocrinology with all of its complex implications has come into existence, modern methods of treating syphilis have been perfected, a practicable means of immunizing children against diphtheria and several other diseases has been discovered, the etiology of such maladies as yellow fever, malaria, tularemia, undulent fever and Rocky Mountain spotted fever has been worked out and aids in the diagnosis of various ills, especially of tuberculosis and syphilis, have been discovered and refined. Most of the practical knowledge concerning the function and influence of the various glands has been brought to light while great strides in the technique and improvement in surgery have been made.

These fragmentary references illustrate the swiftness and magnitude of progress in medical science and emphasize the hopeless inefficiency which must certainly overtake the doctor who fails to keep informed of new discoveries and new procedures through the various channels that are open to him. Opportunity for maintaining and improving qualifications to practice medicine come largely through the functions of organized medical societies.

It is worthy of thought, therefore, that less than two-thirds of the licensed physicians of Illinois maintain membership in the Illinois Medical Society or in any of its component units. Out of 11,672 physicians in Illinois listed in the 1936 directory of the American Medical Association, only 7,287 are members of the Illinois State Medical Society and only 4,656 are fellows of the American Medical Association. This means that over one-third of the licensed physicians of Illinois receive neither the Illinois Medical Journal nor the *Journal of the American Medical Association*. It is presumptive evidence that an equal proportion does not attend the scientific programs of any medical society.

High standards of qualification, however, are basically essential in the interests of both the public and the profession. For this reason the Illinois State Medical Society has initiated and developed the services of the Education Committee, the work of the Legislative Committee and the publication of the Journal and it has cooperated heartily with the Federal and State public health authorities in the development of refresher courses. During the year a system of refresher courses in the field of maternal hygiene has been inaugurated in Illinois and plans have been completed for refresher courses concerning the diagnosis and treatment of the venereal diseases. These and other courses will be given by specialists of outstanding reputation, brought to the various county medical societies from time to time so as to offer opportunities to every physician in the State.

Let me commend to you the importance of this work and solicit your hearty cooperation and support. The full qualification of every licensed physician to practice medicine in keeping with available modern knowledge is the basic and strongest reason for professional privileges and prerogatives in the management of medical affairs. Only high professional standards which inspire public confidence and support can defeat the clamor and agitation for innumerable schemes that would relegate the practice of medicine to a plane equivalent to that of mass production in industry.

Public Health Service. Public health service through governmental agencies has acquired greater momentum during the closing year than at any previous time in the history of the nation. The sum of $8,000,000 was made available to the States through the U. S. Public Health Service for the development and strengthening of State and local health departments. The sum of $3,800,000 was made available to States through the Children's Bureau of the Federal Department of Labor for the promotion of child and maternal hygiene. This division of administrative authority in activities that fall within the field of preventive medicine is the principal objectionable feature of the plan. All public health services of the Federal Government should be united in one department and administered by a physician of special training and experience in that work.

Under the leadership of Dr. Thomas Parran,

surgeon general of the U. S. Public Health Service, the eradication of syphilis has been selected as the overshadowing objective of the enlarged program of public health. The Illinois State Medical Society has endorsed this project. Success of the campaign in Illinois will require the unlimited cooperation of every practicing physician in the State. The acute form of this modern plague could be eliminated within ninety days.

Arrangements have been made for placing at the disposal of the medical profession of Illinois every facility needed in making an end of syphilis. Drugs for treatment are available free from the State Department of Public Health. Laboratory tests are made without charge by the same agency. Rules of the Department which have the force of law require patients to remain under treatment until dismissed by the physician. Epidemiologists to seek out the sources of infection and investigators to bring back delinquent patients for treatment are available from the State Department of Public Health. Funds for defraying the cost of treating the indigent have been provided.

This situation offers to the medical profession an opportunity to rid the State of what Surgeon General Parran describes as the most serious of present-day communicable diseases. The plan violates none of the sound principles of medical ethics or medical economics. The traditional relation between doctor and patient is preserved. The patient enjoys the free choice of a physician and the physician is in a position to render the best services at the disposal of his profession. Under these circumstances and with a mutual spirit of cooperation between health officer and physician, the plan can not fail.

In similar manner the whole structure of the public health program in Illinois is being developed. Under the able guidance of Doctor Frank J. Jirka, State Health Director, the interests of the public and the medical profession have been jealously guarded. The State public health service contemplates the establishment of 26 district health departments. Each of these will be under the direction of a medical officer. While partly supported by Federal funds, these district health departments are under the complete administrative jurisdiction of the State Department of Public Health. The policies of the Department have been worked out in close cooperation with the State Medical Society.

Good public health service is a bulwark against compulsory health insurance. As practiced and proposed in Illinois and in the nation at large, the public health program deserves the unqualified support of the medical profession.

Compulsory Health Insurance. The recognized need for providing adequate medical care to the indigent has brought into prominence the mirage of compulsory health insurance. The movement in this direction has assumed numerous forms in efforts to invade the practice of medicine by the backdoor in the shape of a friend bearing gifts. The Rural Resettlement Administration, for example, makes loans to families whose local credit has been exhausted. The borrower uses money so obtained for the purchase of equipment and supplies on the open market at prevailing prices. To provide medical care to the client families, however, the Resettlement Administration sought to create state or local corporations with power to collect in advance stipulated sums at a definite annual rate and to make contracts with medical societies to provide all needed services at not more than one-half of the usual cost. This scheme is manifestly a form of health insurance which if generally adopted for the benefit of rehabilitated rural families would open the way for extending the principle to any other special class.

Attempts to bolster public opinion favorable to compulsory health insurance have been made in numerous ways. A bill to that end was introduced in Congress. The Social Security Board was authorized to study the matter and developed a plan. The American Federation of Labor adopted a resolution favoring health insurance. The question was debated over a national network of radio stations from a public forum in New York. High school pupils throughout the nation were encouraged to debate the question. Several foundations, including the Julius Rosenwald and the Commonwealth Fund, have encouraged agitation. The survey of medical opinion by the American Foundation, while not concerned primarily with compulsory health insurance, brought the subject into prominent discussion.

These developments show that the subject is neither dead nor dormant. They are vital evidence of the threat of regimentation which con-

fronts the medical profession. This evil thing which will destroy medical proficiency without providing a compensating public advantage must be fought with all of the united energy at the command of the medical profession.

The advocates of compulsory health insurance promise that the free choice of physicians will not be denied under the scheme. We know that the selection of physicians was not infrequently dictated by petty officials in connection with medical care under the emergency relief program. They promise that politics will be banned from the system. On a similar note we were promised that the open saloon would not be tolerated with the repeal of prohibition. They promise that the traditional relation of doctor and patient will be preserved. We know that scant respect is paid to the private affairs of individuals in connection with income tax schedules at one end of the economic ladder and to those who apply for pensions at the other.

If the medical profession alone took issue with compulsory health insurance, the accusation of selfish interest might be made with greater validity. Many thoughtful people in other fields of endeavor, however, have voiced disapproval. Among these is Mr. George R. Kendall, President of the Washington National Insurance Company of Evanston.

"In waging the battle against depression," he declared in an address recently, "there were employed many drastic plans. In this state of emergency these plans found a cooperative spirit in the great body of the people suffering personal distress and great apprehension of what the future might hold in store for them. We could expect this when an emergency exists, but when it is over we should reappraise all such actions, only keeping those permanently as permanent remedies that seem to be proven by all the experiences of the past to be worth while. Impulsive action should be guarded against during reconstruction times. Careful and painstaking readjustments should take the place of those impulsive actions which the public recognized as necessary during the great distress.

"There is a tendency to go on with new reforms, new adjustments and new theories. The field has been made rich for such new schemes because of the apparent success of some of the drastic changes that were made. However, this should instead make us even more cautious.

"There is considerable agitation among some of our representatives for what is commonly called state medicine and state health insurance. The idea is a borrowed one from foreign countries.

"The care given the people of this country by private practitioners is probably as efficient and as painstaking as is the ministry of any other science in the world. Nowhere in the world have the medical sciences been better and more thoroughly developed than in this country; no other set of men have been more unselfish in administering to the sick and afflicted than have the doctors of this country. I know of no man more deserving of great credit for his unselfishness, and for this thoroughness, and for his self-sacrifice, than the American doctor.

"George Washington was the guardian of this great country at its birth; Abraham Lincoln, the preserver of its life; but the American doctor, with his tender and unselfish ministry, has been both the guardian and preserver of this great people. He has been the most ambitious of men. He has built a monument on which could be truthfully inscribed, 'I have extended your life twenty years. I have cared for your babies until today their lives are three times as safe as they were half a century ago.'

"Do we want to restrict or circumscribe the individual aspirations and activities of such a man? Yet, with all of this before us, there are those who now, with a yen for making some drastic move, would have us say that this great profession should be regimented and placed in charge of governmental control. Following such action, if such should ever be, there would then follow the already greatly agitated proposition of compulsory health insurance. State medicine has never proven a success elsewhere; it is distinctly on the defensive when compared with the conditions existing in this country under the guidance of the self-asserting and self-reliant American physician. So let me repeat, and of this you may be sure, if and when we have state health insurance in this country we shall have state medicine, and vice-versa."

This is an expression of clear thinking on the part of a layman whose business interests are enhanced by any scheme that improves health and lengthens the life expectancy of people generally.

Conclusion. Medicine stands today at the crossroads of public relations. One way leads over the bridge of compulsory health insurance into the valley of State Medicine and political regimentation. The other leads straight ahead along a constantly widened and improved highway which has brought to the people of this country longer life and better health than that enjoyed by the citizens of any other nation under the sun.

Through the initiative of private physicians, America has become the medical center of the world. Through the initiative of private physicians, the United States has built up a system of public health service which provokes universal envy. Through the initiative of private physicians, the research and training facilities in this country are unexcelled anywhere.

Through the initiative of private physicians, the quality and volume of medical care enjoyed by the American people is superior to that obtainable in any other country.

This is the splendid contribution of a free profession to a free people. It is the responsibility of the medical profession to protect and preserve this heritage in order that it may be passed on unimpaired to future generations.

PRESENT PROBLEMS IN PREVENTIVE MEDICINE

E. A. Thacker, M. S., M. D.
Health Service Department University of Illinois
URBANA, ILLINOIS

Preventive medicine has progressed rapidly within the last decade. Typhoid fever, diphtheria, smallpox, scarlet fever, rabies, malaria and other diseases have been gradually but continuously decreased. More attention has been given to the acute communicable diseases because of their acute manifestations and ofttimes rapid and fatal outcome. We must, however, not overlook our obligations of prevention and early diagnosis of the chronic type of disease that insidiously destroys life. Cardiovascular disease, malignant tumors, tuberculosis, endocrine disturbances, syphilis, arthritis, chronic foci of infection, dietary deficiency, nephritis and mental diseases are the most important maladies belonging to this group.

Today cardiovascular disease has a mortality rate of 228 per 100,000 from heart disease, 84 from cerebral hemorrhage and 16.8 per 100,000 from arterio-sclerosis. This group is becoming more and more an important problem for preventive medicine. Through the observant physician and research certain causes of heart and blood vessel diseases have been discovered.

The public should learn that prophylactic measures include removal of foci of infection, proper care of certain acute infectious diseases, early diagnosis and care of thyroid disturbances and the necessity of leading regular, well-regulated lives. Many persons are unaware of an existing cardiac or vascular disease until they seek medical advice for some other ailment or have a physical examination for insurance or employment. Until the general public is informed of preventive measures and realizes the necessity of early diagnosis and proper medical supervision, we can not hope to extend the span of life in this group of diseases.

Cancer and other malignant tumors are second in the cause of death with a mortality rate of 102 per 100,000. We all realize the insidious symptomless onset of malignant tumors, especially of the gastrointestinal tract, uterus and prostate. Malignancies too often progress beyond control before medical attention is sought because the early subjective symptoms are so obscure or absent. We must take it upon ourselves, as physicians, to emphasize the necessity of regular physical and laboratory examinations in order that such abnormalities may be corrected early. The public must be educated as to the vagueness of these manifestations and convinced that the majority of early cases can be cured. Many persons have a great dread of malignant disease and consequently hesitate to consult the physician. We must teach them to beware of the so-called "cancer cures" which are constantly broadcasted and advertised by persuasive quacks and cults whose sole purpose allegedly is to save humanity. Many people who do not have and never will have cancer are led to believe that a miraculous cure has been brought about by some remarkable treatment or mystic power. Afflicted persons seek treatment because they are guaranteed a cure. It is our duty to inform the laity of the dangers from such quackery.

Kidney disease is claiming approximately 86 persons per 100,000. Here also the etiological factors and the necessity of regular physical examination must be taught. They should know that the earliest manifestations of such pathological conditions are often discernible only by chemical and microscopical examinations of the urine.

Remarkable progress has been made in tuberculosis eradication. In a relatively few years it has slid down the mortality scale from 200 to 56 per 100,000. There is still much to be done. It is claiming more victims between the ages of 18 and 24 than any other disease. It is our duty to encourage the tuberculin test and x-ray follow-up of the positive reactors. The importance of this procedure has been emphasized by Meyers, Opie, Shepard, Lees, Ferguson and others who have conducted surveys among college students. The public must realize that incipient

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tuberculosis frequently can not be detected by the ordinary physical examination. The old time fear of phthisis must be erased. Early diagnosis and care means early cure and prevention of dissemination to other people.

Although the development of endocrinology is in its infancy, the last two decades have unfolded a marvelous story in human physiology based upon the function of these glands. It has answered many of our formerly difficult problems in medicine. Early recognition of the malfunctioning of the glands of internal secretion is important if the best results from treatment are to be obtained. The greatest advances have been made in pancreatic and thyroid disturbances. Since the discovery of insulin by Banting and his associates in 1922, the treatment of diabetes has been revolutionized. The death rate has decreased to 21 per 100,000. Through early diagnosis and treatment gangrene, nephritis and coma can be measurably prevented. The span of life can be extended and the mortality rate further reduced by teaching the importance of regular physical and laboratory examinations. The same holds true for thyroid dysfunction.

The removal of foci of infection must be stressed. The public should realize that heart disease, kidney disease, infective arthritis, general debility, some mental and nervous disorders and other diseases may follow alveolar abscess, pathological tonsils, cholycystitis and other foci.

The incidence of rheumatic disease is on the increase. A thorough survey in Massachusetts has shown that 10% of the people over forty and 25% of persons between seventy and eighty are afflicted with rheumatism or arthritis. These patients frequently become dependent upon relatives, charitable institutions and the public because of their inability to earn a livelihood. Information on the etiological factors and preventive measures should be dispensed to the public in so far as our knowledge will permit.

The importance of a well balanced diet should be emphasized. Deficiency diseases are not so rare. They develop slowly. Scurvy, rickets, lack of growth and development, anemia, goiter and pellagra still occur unrecognized, for mild cases do not present the typical text-book clinical picture. The medical profession has not assumed the burden of disseminating information on the constituents of a well-balanced diet. Commercial concerns have gone the limit in convincing the laity to buy their products, frequently containing less of the required substance than some of the common cheaper foods. For example, it is generally believed that raisins are very rich in iron, yet lean meats, liver, molasses and navy beans contain more. The vitamin field is relatively new and the general public does not realize the necessity of including these various essentials in the diet. The private physician and the public health department should lend a guiding hand in dispensing information on foods containing the essentials of a well-balanced diet.

Until recently one field of medicine has been sadly neglected by the medical profession. It is appalling to face the fact that occupied beds in our mental institutions outnumber those in all other hospitals combined. Mental diseases contribute to delinquency and dependency. The public must be taught that mental illness is a definite disease of the mind and is just as apt to occur as any physical ailment. The distorted idea that it is some indefinite disgraceful thing must be corrected. According to Hincks, General Director, National Committee for Mental Hygiene of the United States, as high as 40% of hospitalized mental cases fully recover or sufficiently improve to live useful lives. A few organizations have shouldered the task of promoting interest in this field of human behavior.

A definite nation-wide program for syphilis eradication is on its way. A great deal of publicity has already been disseminated, consequently no further discussion need be given here to this disease.

These chronic insidious diseases have a definite place in our program of preventive medicine. The medical profession has been too busy performing its daily duties to the ill to stress the importance of protective health measures and to combat the many evil forces that are constantly growing and preying on the sick. The country is flooded with drugstore and billboard advertisements for self-medication. The radio buzzes with cures for all types of illness. Certain cults and quacks have infiltrated the entire nation and converted many persons to their beliefs and treatments. Uninformed persons naturally fall for these so-called startling, quick and sure cures. They do not realize that little benefit and much harm may follow the patronizing of such schemes for financial gain.

The solution to these health problems lies in

a well organized educational program sponsored by the medical profession and public health departments. A few of the better insurance companies, reputable pharmaceutical houses and health departments are dispensing information on some of these problems. Preventive medicine must be sold to the public. The American Medical Association. state, county and local medical societies are well organized. We must assume our responsibility in directing such a program to safeguard the health of our people.

The following tentative outline is offered to the medical profession as a solution:

1. To furnish speakers at regular intervals before various organizations such as Rotary, Parent-Teachers' Association, Elks, Women's Clubs, Church organizations, etc.

2. Cooperation with reputable life insurance companies and pharmaceutical houses in dispensing valuable protective health information.

3. To sponsor proper newspaper and magazine articles.

4. Literature on the diseases mentioned in this article should be available to the public from our health departments.

5. To sponsor radio health programs. The county medical societies should contact local radio stations for this purpose. The state and American Medical Association should avail themselves of our chain broadcasting systems. Entertaining and instructive health programs in the form of drama, tragedy and comedy can be used in addition to the lecture method.

6. To sponsor moving pictures on subjects of vital interest to our health. A large portion of the public can be reached in the theatre. Dramatization of medicine, short stories in playlet form, interviews with outstanding physicians in their respective fields, and news reels will emphasize to the movie-going public the importance of health protection.

7. To urge all high schools and colleges to include personal and community hygiene in their curricula.

8. To urge regular examinations of grade school, high school, college students and employees of industrial plants and other occupations.

9. Each physician is in an important position to emphasize the importance of regular physicial examination and the necessity for early diagnosis of insidious diseases to his clientelle.

10. To sponsor through our legislative bodies and boards of control more efficient rules and regulations and more vigorous enforcement thereof in suppressing the sale, advertisement and radio broadcast of undesirable patent medicine and quackery.

11. To urge our medical schools to include more instruction in preventive medicine and hygiene. This phase of medicine is growing rapidly. It is just as important for the physician to be trained to prevent disease as it is to cure it. There should be regular meetings or clinics of the local medical organizations to keep the practicing physician abreast recent public health information. This is vital, for without such a synchronized educational program the whole structure will be built on a crumbling foundation.

The facts must be faced. There is agitation for socialized and state medicine. The profession is partially at fault for it has not met the present medical economic problems efficiently. Heretofore, the public has been left to solve them. Consequently, certain undesirable forms of health insurance, contract practices, cults and quackery have arisen, guided by individuals or corporations having no medical training or none of the ideals and principles of sound scientific medicine. These trends can be definitely curbed if the profession will take the initiative, meet its public responsibilities better and offer satisfactory plans for the solution of medical economic problems as they arise.

Through the plan outlined herein, the medical profession will be fulfilling the ideals of preventive and curative medicine more efficiently. The insidious group of diseases can be averted or an earlier diagnosis and proper treatment instituted while the chances of recovery are excellent. It will aid materially in exterminating cults, quacks and self-medication. People will be reassured of the sincerity of the medical profession in administering to the sick and in health protection. By having the support of the general public, undesirable forms of socialized medicine can never materialize.

DISCUSSION

Dr. L. M. T. Stilwell, Champaign, Illinois: Dr. Thacker has read to us a splendid paper concerning a subject which is constantly present. The public at

large, unable to treat disease, is willing to do whatever it can to prevent disease. Insurance companies, large and small corporations, factories and health departments, in fact, any organization with money to spend for its employees or persons in which they are interested, have become "better health" minded. We of the medical profession have, as Dr. Thacker explained, been too busy performing our daily duties to combat sickness and as a result have spent too little time stressing preventive health measures.

Now parent-teacher associations, church organizations, women's clubs, social workers and similar organizations are coming to the medical profession asking for our aid. They need leadership and who is better qualified than the medical profession to give this leadership and direct these organizations along the proper pathways? Socialization of medicine is not as far away as we would believe unless we of the medical profession make the best of our opportunities and take this leadership offered to us.

We have already seen what the federal government can and will do in the prevention and treatment of syphilis and it behooves the medical profession to take active steps to aid in this project.

The program as outlined by Dr. Thacker should be followed as one offering a good solution to educate the laity in prevention of illness and disease. Of course many medical societies such as in Chicago, Detroit, New York and other large cities are doing this very thing. Radio dramatizations, radio talks, newspaper articles all sponsored by the local organized medical society are used. But programs such as these should reach the smaller communities as well.

As one of our recent presidents of the Illinois State Medical Society has said—"Join them and lead them." This we can do. We can take the initiative, meet our responsibilities and give the best plan for solution of our medical economic problems.

INDUSTRIAL HYGIENE—ITS HISTORICAL DEVELOPMENT AND THE MODERN CAMPAIGN

MILTON H. KRONENBERG, M. D.

Chief, Division of Industrial Hygiene, Department of Public Health, State of Illinois

CHICAGO

Man in the pursuit of his work has always been exposed to hazards no matter what the work was.

The stone-age man gathering his food, hunting animals and building a place for shelter, was subject to bodily harm.

We are inclined to value a civilization according to its artistic achievements. We admire the pyramids and temples of ancient Egypt which have survived the centuries, but we forget that they were built with the blood and tears of human beings.

The human beings in those days were primarily slaves.

We also admire the graceful Greek bronze statues that fill our museums, but we do not think of the copper miners providing the materials, or the coal miners digging the coal to make the bronze, working in narrow galleries suffocated by the heat, smoke and dust.

The ancient physicians were keen observers and noticed the influence of certain occupations on the workers' health, but they were not actually interested in the health of the manual laborer, devoting their attention almost exclusively to the upper class.

The middle ages scarcely made any contributions to this subject and it is not before the end of the 15th century that we begin to find special literature devoted to the industrial diseases.

Voyages of discovery at that time were not in the interest of science, but primarily in search of precious metals and minerals.

In 1473 a German physician, Ulrich Ellenbog, wrote a pamphlet of seven pages on "the poisonous wicked fumes and smokes." It covered the illness observed among the goldsmiths.

Mining was the most dangerous occupation of the early days and, therefore, received attention first. An example of this type of literature is Agricola's work, published in 1556, where he described the various hazards that threatened the miners' health.

Scattered observations on industrial disease followed and attempts were made then to describe their clinical picture.

In 1700, the famed Italian physician, Bernardino Ramazzini published his famous book. "A Treatise of the Diseases of Tradesmen." It is a medical classic, the first text-book on industrial diseases. He described the various trades and their health hazards, indicating methods to prevent the diseases. His text-book outlined to the medical world a new subject.

The 18th century had little to add to what Ramazzini had already said and described.

In the early 19th century, the industrial population increased tremendously in England and the people were then working under appalling hygienic conditions. Life expectancy was short and the death rate high. Public interest was

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aroused. The work of the physician was important but it was obvious that conditions could only be improved by way of legislation. The first "Factory Act" was passed to remove the worst abuses. In spite of this, conditions were still bad.

France and later Germany drew the attention of the public to the health conditions in the working population and soon found it necessary to establish industrial codes for safeguarding its employees.

In the United States the literature on industrial diseases began in 1837. Factory legislation followed from the middle of the century on and developed rather slowly.

It is not until the 20th century that there was a real improvement. The World War proved to be a strong stimulus. Workers were scarce. Their health, therefore, meant a great deal. Research was done and industrial clinics opened. There can be no doubt that working conditions have improved greatly in most civilized countries.

In relating the subject of the modern campaign in "Industrial Hygiene," there may be several ways in which to approach the subject. I feel that by attempting a brief survey of the general principles we can better visualize this broad field and its many important aspects. I am only touching the fringe of this specialty, but progress can only follow on accumulated knowledge and it, therefore, behooves each of us to make our individual contributions.

This complex and highly mechanized hemisphere of ours has brought about a complete revolution and rehabilitation of industry.

Inventions brought into existence new materials, new machinery, new processes. It so subdivided labor that women and children became a factor in many classes of industry not previously opened to them. As time marches on we may expect many more such changes to take place.

All these have brought new stress upon the tissues of human beings. In other words, the mind and the body are in a continuous struggle for supremacy over the factors that operate insidiously or acutely, to injure the body structures or alter their activities in such a manner as to interfere with the full enjoyment of life and its normal span of existence. The end results of such factors, caused by toxic and irritant industrial substances and deleterious work-room environments, are classified as occupational or industrial diseases.

Perhaps it may be easy to estimate the result of bodily injury or award a fixed rate of compensation for the loss of life, but it is far more difficult to estimate the insidious and progressive effects of occupational diseases.

As physicians, we are concerned about any condition which will shorten our lives, and where the relationship is clear, we demand that something be done about it. The many causes of ill health, lingering disability and deaths among our industrial population can not go unrecognized.

There must be an enlightenment and respect for this field of preventive medicine. If causes of ill health exist in industry, we must find the wells and springs of their origin. It behooves us to put into effect the discoveries and advances made in medicine, the result of which will be reflected by increased industrial longevity.

Heretofore, the chief requisite of a physician who had an industrial practice was that he be a good man and well qualified surgeon. Today, the employer and the employee are demanding much more than curative medicine and repair work.

There is now an intelligent demand for the application of the principles of preventive medicine and that means that the physician, interested in this phase of public health, concern himself with the workings and activities of all departments within the walls of the plant, where his influence and full responsibility of service will be realized.

Fundamentally, the science of medicine is applicable to industry. If we are to be true to our generation, and in our day contribute as the bacteriologist did fifty years ago, and as the nutritionists have done in recent years, we must use our powers of education, of information, of inspection and abatement, to make all employment as nearly compatible with health as our knowledge permits.

No branch of medical science has come so prominently to the front in recent years as industrial hygiene. Its rise has undoubtedly been due to the fact that it renders a service of value.

To the working class it has been tremendously beneficial.

To industry it has proven satisfactory and profitable.

To the medical profession it has opened up new avenues of usefulness. The physician must take a definite and dominating part in this activity designed for the physical conservation of the worker.

Industry needs him and medicine must supply him.

In considering the physician's activities in this preventive field, his first step is in the conservation of energy and health in addition to learning the facts of the physical condition of the workmen.

Physical examinations in industry should not be made primarily for the purpose of exclusion, but designed for the proper selection and placement of the worker. The sub-standard worker is also worthy of special consideration. He can be given suitable, selective employment without forcing him into idleness. Many of them are capable of some useful production.

The physician must appreciate and acquaint himself with the factors favoring the action of toxic compounds and consider them of value just as he values the factor of lowering the resistance of the body, interference of elimination by the renal and gastrointestinal tract; the factor of hastening skin absorption by unnatural environments of humidity and heat; exertion, which increases the respiratory rate and depth and so increases the amount of inhaled toxic materials; long hours, which means a larger dose of poison and shortens the period during which elimination takes place.

Since individual susceptibility to toxic and irritating substances varies, as is well known by our toxicologists, the physician should not be influenced by the non-cooperating employer who argues that what is dangerous for one worker must be dangerous for all.

Although we accept the variation in susceptibility to infectious diseases, many physicians are reluctant to accept this fact of varying susceptibility of industrial poisons.

It is further obvious that the physician who aspires to practice in this special field of preventive medicine should need training before he can qualify in that capacity. We should, therefore, be concerned about the facilities for training these men. Some medical schools have exposed the undergraduate to this specialty by a few lectures required by the regular curriculum, but out of necessity and due to the lack of trained medical personnel, a post-graduate course of sufficient extent with definite requirements is paramount and urgent.

The physician who desires to carry on this work should have a fair knowledge of the physiological aspects of ventilation. He should know under what conditions it is desirable to take air and dust samples, and what methods should be employed in analyzing them. He need not necessarily be familiar with the technic of analysis, but he should know when such proceedings should be resorted to. He should know something about the industrial effects and exposures to noise, vibration, monotony, fatigue, posture and appreciate the factor of sex as it effects women. He must be able to recommend who is best suited for heavy duty, wet and damp environments, extremes of temperature, etc. The physique, the mentality, the movements and morals of the employee are all his problem, and he must deal with them as individuals.

This public health undertaking is of course not a one man job. It is only through the joint activity and cooperation of all agencies interested in this field that will probe the disabilities of industrial environments.

Many employers today realize that the subject of health vitally concerns their industrial problems. If they are to secure and maintain high efficiency in a working force, then both health and safety must receive proper consideration. It is not a charity; it is a duty.

An industry that applies the principles of modern medicine to the shop workers, sick or well, supplementing the remedial agencies of medicine by the application of work-room welfare provisions, has an adequate and cooperative appreciation of the social and economic problems of industry in its relation to society.

The workmen's only real asset is his health. When he loses his health he loses everything.

Some employers have taken up the problem of industrial health preservation and protection without compulsion; others it appears will have to be forced into it.

For years the nature of this work was chiefly a legal function, devoting all its time to accidents and so required no training in hygiene and the fundamentals of public health. Health, it was felt could take care of itself, and so there

existed disastrous forms of ventilation and many poisons were tolerated.

The old practice when some fume, gas or dust became objectionable in a plant—and it had to be objectionable before any attention was paid to it—was to put in a home-made exhaust duct and fan. In most cases it was a complete failure and oftentimes increased the hazard or created others.

The engineer has a definite place in this panel. Since each process in an industry has it own definite problems, the engineer can ascertain the conditions of the work-room environment and design methods of control. His occupational analysis should be very informative.

Compensation boards must also lend their aid. Although it is not a problem primarily of compensating the victim of an exposure, compensation seems to have succeeded thus far in dominating the immediate picture. We cannot compensate vigorous health. Our pressing problem is the prevention of disease. The necessity for treatment is the badge of, and compensation the penalty for, failure. I should like to emphasize the need and importance of medical men on these compensation boards.

In addition the preventive program includes strong and unbiased legislation. Safe practices and standards are being encouraged and set up wherever toxic and irritating substances are involved. The regulating of the responsibility is also being clearly defined and established.

The proper machinery for enforcement is also necessary. This is applied whenever there is utter and willful disregard for the codes, rules and regulations covering our safe practices and standards. This is best administered through a State Labor Department.

Monumental investigations and research activities have already been done covering some of the subjects in this field by many outstanding scientists and colleagues of ours. In this State we remember and are proud of the valuable contributions and early investigations made by Apfelbach and Hamilton. Many potential hazards may go undirected and unrecognized, if there is not a continuation of research in this field.

Another great need now is the industrial hygiene laboratory. It is necessary for the study and measuring the extent of exposure to injurious materials, as it is an important factor in the control of occupational diseases. The establishment of such laboratories should be in units charged with the control of this public health problem. A laboratory of this type must be specially designed and equipped. Industry and manufacturers of the many products used in industry may lend their air by laboratory research and investigations involving the toxicity of many of their products before they are put out on the market, and where they are known to be harmful, to label them so, in addition to informing the user of their products as to the safest method available in handling their product.

It is also proper at this time to say a word about the degree of efficiency and usefulness of safety equipment and the protective garments used in industry. It is not the intention of the physician to minimize the value of safety appliances. It should be obligatory to comply with state safety codes, but the human element in industry is a complex problem and cannot be solved entirely by mechanical means.

In line with the demand for improved technic in industrial hygiene, we should not overlook the need for the proper training of our state factory inspectors. With a qualified type of individual doing this work, whose judgment will be valued and respected, many hazards can be uncovered.

The statesmen of our modern age, because of their broad vision and human understanding, may also lend a helping hand in arousing and encouraging the need for healthy working environments. They can clearly set forth its human aspect and make our citizens understand that life is not counted by years, but by the length of useful service rendered. This was clearly brought out in one of the celebrated addresses of Disraeli, who said:

"Public health is the foundation upon which rests the happiness of the people and the power of the State. Take the most beautiful kingdom, give it intelligent and laborious citizens, prosperous manufacturers, productive agriculture; let the arts flourish, let architects cover the land with temples and palaces, and in order to defend all these riches, have a first-class navy and a powerful army, but, if the population remains stationary, if it decreases yearly in vigor and in stature, then that nation must perish. And that is why I consider that the first duty of a statesman is the care of the public health."

The industrial nurse may be of further assistance since she frequently sees a worker before he reports to the plant physician, and can

oftentimes supply information that assists in the diagnosis, where there has been an occupational exposure. A detailed occupational history is essential for establishing diagnosis in these cases.

The influence of the family doctor is very great in America, and if these family physicians do their full part in this campaign, they would accomplish more than any lay commission. Not that they should replace all other agencies and groups interested in this work, but rather to join them and support their efforts.

The campaign of interest in this work would be lax if we were to overlook the necessity of keeping and acquiring morbidity and mortality statistics in industrial undertakings. It is only through these actuarial tables that we can direct our efforts to the more hazardous trades and industries.

We are told that a few of the wonders of medicine includes such subjects as:

Immunity.

Anesthetics and analgesia.

Antiseptics.

Knowledge of vitamin and food values.

Organotherapy.

It is now time to add Industrial Hygiene in preventive medicine.

1853 W. Polk Street.

CONVALESCENT BLOOD IN TYPHOID FEVER

George D. J. Griffin, M. D., F. A. C. S.
CHICAGO

Those of us who were privileged to be in Medicine in Chicago, over a quarter of a century ago, still have a vivid mental picture of the ravages of typhoid fever. We can recall the toxemia, exhaustion, delirium and complications of hemorrhage, perforation and emboli. We well knew that the average case of typhoid fever lasted six and eight weeks, and that during that period while there were daily remissions of fever the temperature never returned to normal and mounted daily to 105 and 106. It burned itself out and fell by lysis to a normal level.

Today the Medical students and indeed the practicing physicians who have been graduated since that time are wholly unfamiliar with this condition. Our excellent water supply, well chlorinated, coupled with the efficacy of the drainage canal, and the constant watchfulness of an excellent Department of Health have well served our community, so well as to have eliminated a major plague, which took a frightful toll. Typhoid fever is unknown in Chicago except for an occasional, imported case or one of accidental infection.

In the period which I am recalling, the standard treatment was the so-called "Typhoid Orders". This consisted of

1. Six ounces of milk every 2 hours.
2. Daily enema.
3. Sponge bath every 2 hours for temperature over 102.5.
4. Supportive medication for circulatory system.
5. Morphine for hemorrhages.
6. Operation for perforation of an ulcer.

The rest of the treatment consisted in hopes and prayers; an analysis of the above shows that there really was no active curative treatment.

The first step in the elimination of typhoid was the control of the massive source of the infection.

The second very great step forward was the development of typhoid vaccination to immunize those possibly exposed to the infection. The efficacy of this has been well proven and was well used in the World War.

There is a third step yet to be taken that will be the final stride forward in the conquest of another infection by the Science of Medicine. That step is the therapeutic control and cure of those unfortunate enough to become infected. There are many places where typhoid fever is yet extant and if a new thought can be developed for its cure, perhaps great good can come from it.

I am offering an experience which may be that new thought or at least may be the nucleus for a new thought.

On February 22, 1937, a six year old girl was admitted to Mercy Hospital on my service. At the time of entrance she had a temperature of 103.2. She had been running a temperature the previous four days, each day slightly higher than the preceding day. The night of her admission her temperature reached 104.2.

The next day laboratory tests were ordered. The following was reported:

1. Widal positive. Dilution 1-160.
2. W. B. C. 6900, a relative leucopenia.
3. Urine, Diazo negative.
4. Stool examination: Typhoid bacilli present and identified.

5. Blood culture: Typhoid bacilli present.

No rose spots were seen but the child had a definitely enlarged and palpable spleen. The laboratory tests were later verified—a legal requirement here by the Illinois State Board of Health.

I am offering all this detail because I want to assure the readers of this article that the diagnosis was unquestioned and absolute.

During the succeeding few days, this child's illness was without variation of the usual monotony of a typhoid state. I recalled having taken care of her father some eight or ten years ago with a typical typhoid fever. I recalled also that one infection of typhoid historically protected that individual from future infections. It occurrred to me that that immunity must be conferred by persistent antigens in the recovered individual's serum. I decided to inject the father's whole blood into his typhoid child. This was done February 28—5 cc's being injected into her buttocks. The accompanying chart shows the result on the patient's temperature. The day after the injection, February 28, 103, March 1, 103.6 and then a precipitate drop by crisis to 98 on March 2. This was followed by a secondary rise the next day to 103 and arrangements were made for a repetition of the treatment. I intended that the injection should be double the amount of the first injection but through a misunderstanding on the part of my interne, the same dose was repeated. This may have been fortunate, because a half-hour later the temperature rose to 104.2. I believe that this might have been a protein reaction or the result of emotional disturbance on the part of the child. At any rate this was followed by a second precipitate drop to normal in 16 hours. A rebound again occurred the next day to 102.8, but each day thereafter the top of the temperature curve was lower than the preceding day until March 6 the top temperature reached only 99.4.

However, as a matter of precaution on March 6, just one week following the initial injection, a third injection of the same amount was given. This was not followed by any marked reaction, as the chart will show. The temperature remained within normal limits.

I do not believe that this third injection was necessary. I believe that the moderate elevation of temperature on March 7, to 99.8 might again have been a serum reaction. If that is true, then study of the temperature chart will show that the typhoid temperature was eliminated on the sixth day after the beginning of the treatment. There are two other remarkable facts that show in the record:

1. The leucopenia was followed by a moderate leucocytosis, to 12,000.

2. The stools rapidly became free of typhoid bacilli and remained permanently free of them. It was impossible to use the first reports of negative stools because, for a removal of quarantine, our Board of Health requires negative reports of stools ten days after a normal temperature is reached. This can be taken as evidence of the tenacity with which the typhoid bacilli infest the intestinal canal.

The child was given a bland soft diet, fluids were pushed and upon discharge from the hospital was well nourished, strong and active. There was no emaciation nor exhaustion. As a matter of fact after the first week there was no sickness. I believe too, that a larger initial dose might obviate the necessity for further injections.

It may be a matter of interest to know that this child apparently contracted her typhoid fever from her seventy year old grandmother, who probably also infected the father ten years ago. Examination of all members of the household uncovered the fact that the grandmother was a carrier with no history of ever having had typhoid fever. She has been my patient for over twenty years and I can testify that during my care of her she did not have that infection. I shall inject the grandmother with the same blood that I used on the child, in an effort to clear her as a carrier.

I am attaching with the temperature chart, the various laboratory reports of interest, with dates, so that conclusions may be drawn and a better understanding of the case be obtained.

In conclusion let me say this: I am perfectly conscious that no great decision may be drawn as to the efficacy of any new type of treatment in any given condition when only used on one patient. The opportunities that we have however in Chicago for its use are fortunately few. I am offering it with the humble thought that those who do have more frequent contact with typhoid fever may use it and develop from it a treatment which if not spectacular will at least be effective. If such is done and my puerile efforts in medicine shall have evolved a new thought in reference to an old plague, then I will feel that I have been amply justified in having reported this experience. I shall feel too, that if I have contributed even a mite to the advancement of medical science I shall have discharged some of the great debt that I owe to the medical profession for its thirty years of kindness to me.

LABORATORY FINDINGS:

February 22, 1937:
Nose Culture: No hemolytic streptococci found;
Throat Culture: No hemolytic streptococci found;
No Diphtheria bacilli found.

February 23, 1937:
Vaginal Smear: No gram negative intracellular diplococci found.

March 2, 1937: Urine:
Bile negative; Indian Urobilinogen negative;
Diazo reaction negative.

February 24, 1937: 24 hour specimen; 95 cc;
Reaction Acid; Amorph urates; casts negative;
W. B. C. 15-20; R. B. C. occasional.

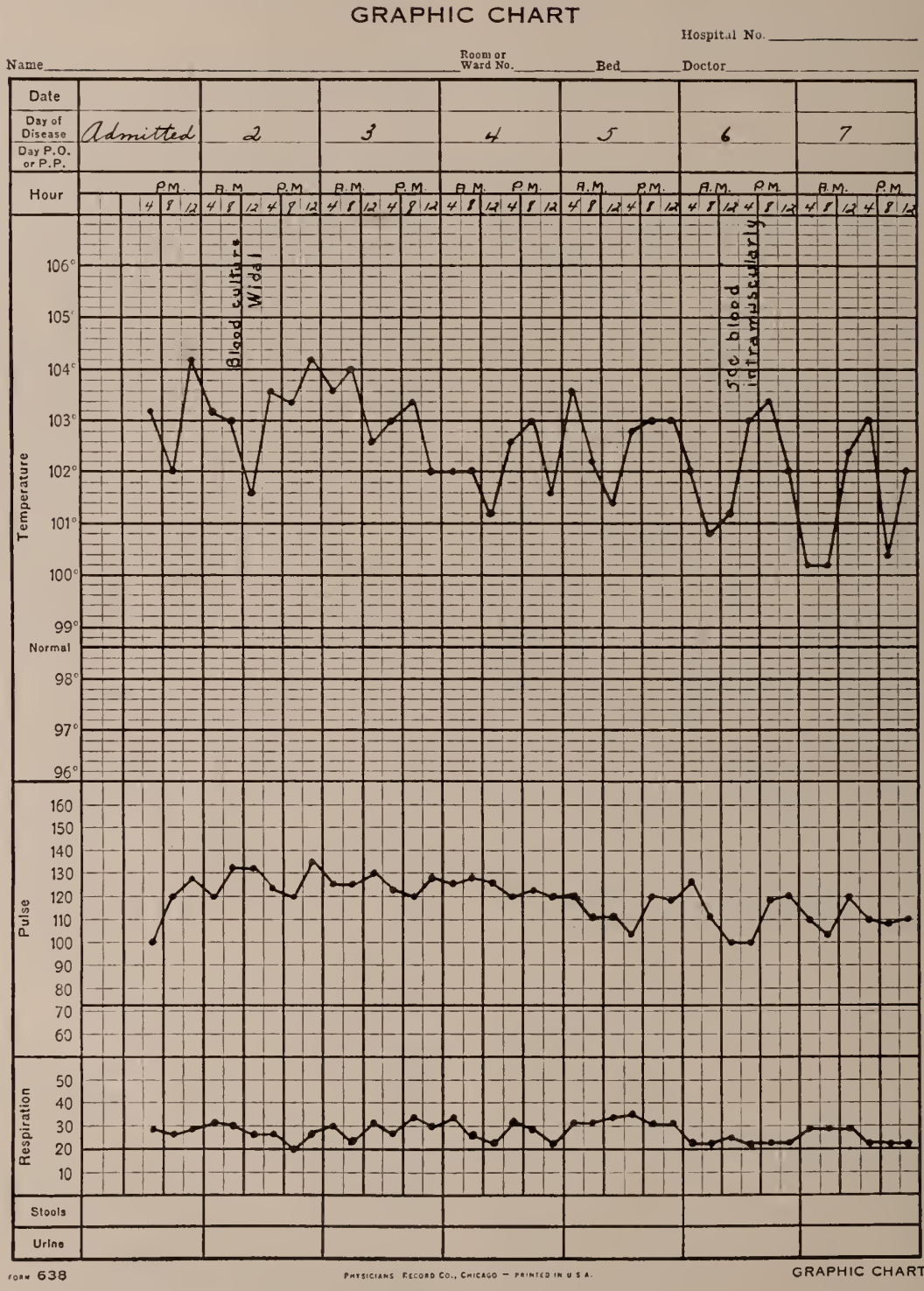


Chart 1. Patient's record, February 22-28.

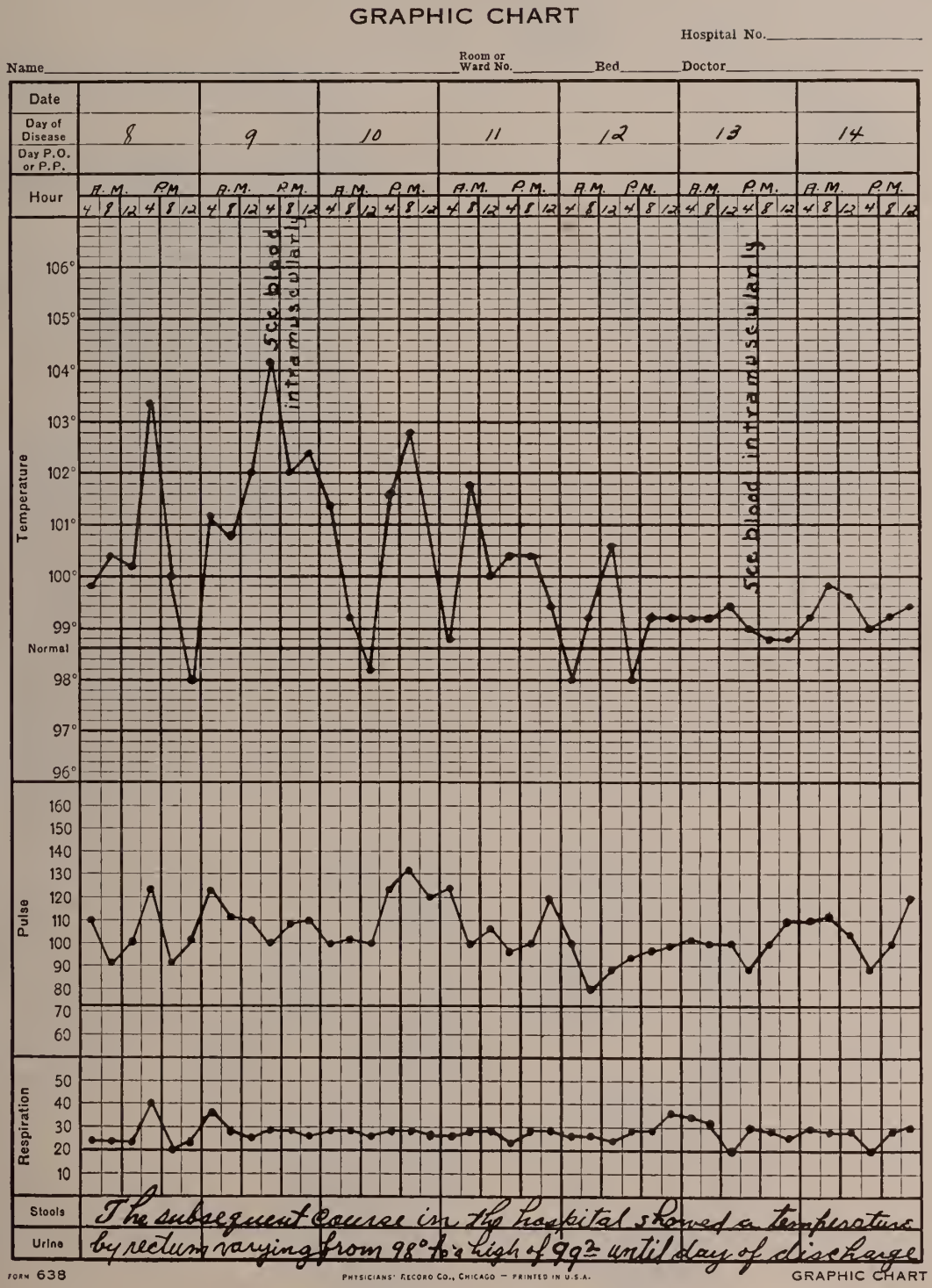


Chart 2. Patient's record, March 1-7.

February 23, 1937:
Blood serum examined for Widal—
Typhoid 'O' Agglutination in dilutions 1:20 to 1:160.
Typhoid 'H' Agglutination in dilutions 1:20 to 1: 80.
Paratyphoid A—no Agglutination in all dilutions.
Paratyphoid B—no Agglutination in all dilutions.

February 23, 1937:
Specimen of Blood; Culture shows rod-shaped organisms;
Will aggluturate when sera arrives.

March 5, 1937: Blood Culture:
(Date received February 25, 1937, Illinois Dept. of Public Health Laboratory) shows Typhoid, Paratyphoid A, Paratyphoid B.
Blood culture, Typhoid bacilli present.

February 23, 1937:
Erythrocytes per cmm 4,310,000;
Hemoglobin—12 g—77.92%.
Leucocytes, 6,900;
Polymorphonuclear Leucocytes 76;
Lymphocytes 20; Monocytes 2; Eosinophiles 2.

February 23, 1937: Urine:
Specific gravity 1012; reaction acid, sugar, trace;
Amorph Urates W. B. C.—5-10:—R. B. C.-0.
Epith Cells—0; Bacteria.
Many tripole and phosphates.

March 5, 1937:
Erythrocytes, per cmm 4,350,000: Hemoglobin 11.5 gm = 74.7;
Leucocytes 11,550; Polymorphonuclear Leucocytes 55;
Lymphocytes 43; Monocytes 1; Eosinophiles 1.

February 26, 1937 (Illinois Dept. of Public Health Laboratory)—Widal Test on Blood:
Typhoid H—Positive 1:60-0; Positive 1:160.
Paratyphoid A—negative.
Paratyphoid B—1:40.

March 5, 1937:
Diazo reaction negative.

March 6, 1937: Feces:
No non-lactose fermenting colonies present on Endo plate.

March 6, 1937: Feces:
Endo plate shows growth of Lactose fermenting colonies, either B coli communis or communior; no typhoid colonies.

March 8, 1937: (Stool received February 23, 1937):
Agglutination test positive for typhoid; negative for Para A, para B, polyvalent dysentery and enteritides.

February 23, 1937:
Corrected Sedimentation Rate = 0.08.
Normal Sed. Rate = 0/08—0.35.

March 10, 1937: Feces:
Endo plate shows growth of lactose fermenting colonies resembling B-coli, communis and communior.

March 20, 1937: Feces:
Endo plate shows lactose fermenting colonies which are either B. coli, communis or communior.

NO TYPHOID PRESENT.

TYPHOID FEVER AND DIPHTHERIA IN ILLINOIS

FRANK J. JIRKA, M. D.,
State Health Director
SPRINGFIELD, ILL.

During the last ten years, an impressive decline has taken place in the prevalence of and mortality from typhoid fever and diphtheria in Illinois. This improvement represents a much more efficient program of preventive medicine than the dramatic decline in mortality which followed the first few years of scientific effort against the two diseases in question. As the work of eradicating a disease approaches closer and closer its goal, greater efforts and a more refined and concentrated technique are required to crush entirely the foe. Until the final elimination of a communicable disease, moreover, the ground already gained is uncertainly held.

Thus the improvement during the last decade is encouraging, reflecting credit alike upon the practicing medical profession and the public health agencies. Mortality from both typhoid fever and diphtheria in 1936 was the lowest on record in down-State Illinois. Exclusive of Chicago, only 61 deaths were attributed to typhoid fever in the State in 1936, compared with 151 in 1927, a reduction of 60 per cent. Case reports fell from 1,278 in 1927 to 566 in 1936, a decline of 56 per cent.

Progress against diphtheria has been no less striking. The 79 down-State deaths last year compare with 205 in 1927, a reduction of 61 per cent. Case reports declined from 2,148 in 1927 to 1,172 in 1936, a fall of 45 per cent.

There were 39 Illinois counties that reported no death from typhoid fever in 1927, but in 1936 there were 62 that reported no death. In 1927 only 44 counties reported no death from diph-

theria, but there were 66 in 1936. There were only 8 counties, however, that reported no case of diphtheria during 1936 while only 17 reported no case of typhoid fever compared with 7 counties with no case of diphtheria and 9 counties with no typhoid fever in 1927.

Up-State New York, made noticeably better records last year with respect to both diseases than did down-State Illinois. With about 1,500,000 more people, Up-State New York reported only 40 deaths and 287 cases of typhoid fever and 29 deaths and 314 cases of diphtheria.

Comfort in the improvement in Illinois during the last decade is dampened somewhat by the fact that the gains have not been geographically uniform. Several counties experienced excessive rates during 1936. The twelve counties which head the list with the highest case and mortality

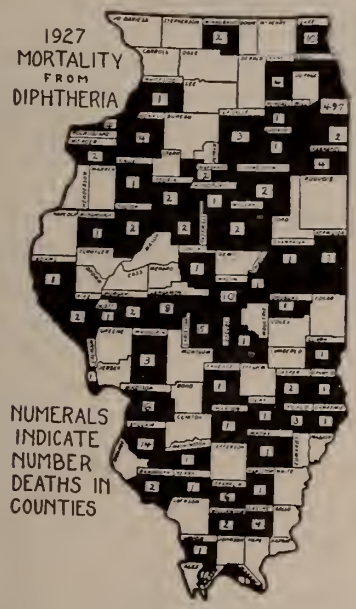


Fig. 1. Diphtheria mortality in 1927.

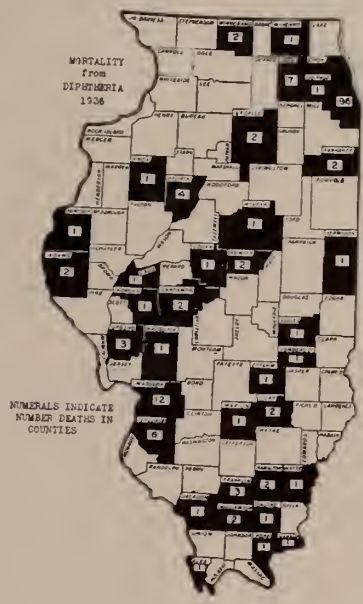


Fig. 2. Diphtheria mortality in 1936.

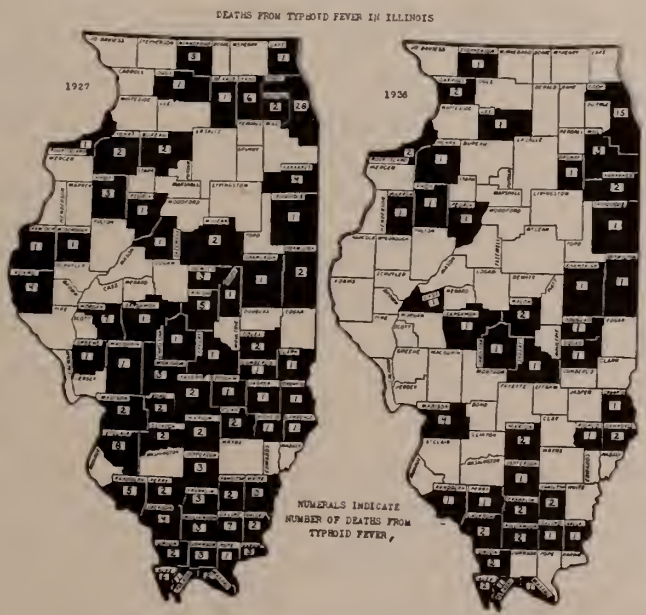


Fig. 3a. Deaths from typhoid fever in 1927.
Fig. 3b. Deaths from typhoid fever in 1936

rates from both typhoid and diphtheria are enumerated in the tables.

MORTALITY AND MORBIDITY—DIPHTHERIA —COUNTIES WITH HIGHEST INCIDENCE

1936	Cases	Rate*	Deaths	Rate*
Hamilton	12	92.4	2	15.4
Greene	21	103.0	3	14.7
Hardin	2	28.6	1	14.5
Pope	2	25.1	1	12.5
Clay	8	49.5	2	12.4
DeWitt	5	26.8	2	10.8
Cumberland	3	28.7	1	9.5
Madison	88	57.1	12	7.8
Cass	2	12.1	1	6.1
White	17	93.7	1	5.5
Effingham	3	15.8	1	5.3
Kane	60	45.2	7	5.3
Down-State	1154	26.5	79	1.8

*Per 100,000 pop.

MORTALITY AND MORBIDITY—TYPHOID FEVER—COUNTIES WITH HIGHEST INCIDENCE

1936	Cases	Rate*	Deaths	Rate*
Hamilton	4	30.8	2	15.4
Carroll	3	16.3	2	10.8
Union	12	60.6	2	10.1
Lawrence	11	50.0	2	9.1
Alexander	9	40.0	2	8.9
Massac	1	7.1	1	7.1
Richland	1	7.1	1	7.1
Pulaski	12	80.6	1	6.7
Cass	3	18.2	1	6.1
Douglas	3	16.7	1	5.6
Jackson	11	30.9	2	5.6
Marion	7	19.6	2	5.6
Down-State	462	10.6	61	1.4

*Per 100,000 pop.

Inoculation is the factor responsible for the reduction of diphtheria. The public health agencies have stirred up popular interest in this procedure, but the bulk of the inoculation service has been done by practicing physicians. The uneven progress was caused by a lack of public health machinery to inagurate and maintain reasonably adequate educational programs in all places simultaneously. Inoculation campaigns that resulted in the immunization of practically all susceptible children have been conducted in numerous places only to be followed by a lapse of activity for several years. A new crop of susceptibles thus arises and with it the disease reappears.

Progress against typhoid fever has resulted from a combination of several factors. The sanitation of water and milk supplies and of sewage disposal has gone forward more rapidly than ever before. Vaccination campaigns have been conducted in an intensive manner in the endemic area of southern Illinois. Epidemiological efforts have succeeded in the detection of many carriers, some 165 now being known and supervised. Community sanitation programs have caused the construction of thousands of sanitary privies on premises where sewer accommodations were not available. An extensive anti-stream pollution program has resulted in reclaiming hundreds of miles of waterways from contamination. All of these activities have contributed toward the control of typhoid fever.

PROVISIONAL MORTALITY—1936

	Diphtheria		Typhoid Fever	
	Cases	Deaths	Cases	Deaths
Adams	15	2	6	..
Quincy	12	2	4	..
Alexander	6	1	9	2
Cairo	1	1	1	2
Bond	5	..	6	..
Boone	..	..	..	..
Brown	2	..	..	..
Bureau	8	..	2	..
Calhoun	1	..	1	..
Carroll	1	..	3	2
Cass	2	1	3	1
Champaign	22	..	12	1
Champaign	3	..	2	1
Urbana	3	..	3	..
Christian	2	..	7	1
Clark	2	..	1	..
Clay	8	2	4	..
Clinton	7	..	2	..
Coles	14	1	6	1
Mattoon	7	1	2	..
Cook	796	96	121	15
Berwyn	16	1	1	1
Blue Island	..	..	1	..
Brookfield	2	..	2	..
Calumet City	1	..	..	..
Chicago	614	88	104	10
Chicago Heights	21	..	..	..
Cicero	31	3	3	..
Elmwood Park	3	..	1	..
Evanston	2	..	1	1
Forest Park	..	..	1	..
Harvey	11	..	1	..
LaGrange	..	..	..	..
Maywood	4	..	1	..
Melrose Park	1	..	2	..
Oak Park	33	1	..	..
Park Ridge	3	..	..	..
Wilmette	2	..	..	..
Winnetka	..	..	..	..
Crawford	7	..	5	1
Cumberland	3	1	3	..
DeKalb	2	..	..	..
DeWitt	5	2	..	..
Douglas	26	..	3	1
DuPage	17	1	2	..
Elmhurst	3	1	..	..
Edgar	1	..	3	..
Edwards	4	..	2	..
Effingham	3	1	6	..

	Diphtheria		Typhoid Fever	
	Cases	Deaths	Cases	Deaths
Fayette	4	..	2	..
Ford	..	..	1	..
Franklin	10	3	18	2
West Frankfort	1	..	5	..
Fulton	7	..	5	..
Canton	1	..	2	..
Gallatin	9	..	3	1
Greene	21	3	5	..
Grundy	..	..	8	1
Hamilton	12	2	4	2
Hancock	6	1	4	..
Hardin	2	1	1	..
Henderson	..	..	3	..
Henry	7	..	1	1
Kewanee	4	..	1	1
Iroquois	3	..	3	1
Jackson	7	1	11	2
Jasper	4	..	9	..
Jefferson	5	..	6	1
Mount Vernon	3	..	..	..
Jersey	4	..	..	..
JoDaviess	..	..	..	..
Johnson	1	..	2	..
Kane	60	7	1	..
Aurora	26	1	..	..
Elgin	27	5	..	..
Kankakee	19	2	4	2
Kankakee	15	1	..	1
Kendall	..	..	3	..
Knox	12	1	7	1
Galesburg	9	..	4	1
LaSalle	53	2	2	..
LaSalle	5	1	1	..
Ottawa	3	1	..	..
Streator	20	..	..	..
Lake	7	..	2	..
Highland Park	..	..	..	..
Waukegan	3	..	1	..
Lawrence	5	..	11	2
Lee	..	..	2	1
Livingston	11	..	1	..
Logan	11	1	1	..
Lincoln	4	1	..	..
McDonough	7	..	..	..
McHenry	5	1	..	.
McLean	9	1	2	..
Bloomington	..	1	..	..
Macon	16	..	7	2
Decatur	10	..	5	2
Macoupin	12	1	8	..
Madison	88	12	18	4
Alton	27	2	5	2
Granite City	5	..	..	1
Marion	7	1	7	2
Centralia	1	..	1	..
Marshall	1	..	..	..
Mason	3	..	2	..
Massac	7	..	1	1
Menard	3	..	1	..
Mercer	1	..	..	..
Monroe	4	..	1	..
Montgomery	6	..	1	..
Morgan	21	1	9	..
Jacksonville	16	..	8	..
Moultrie	10	..	1	..
Ogle	1	..	1	..
Peoria	33	4	8	1
Peoria	26	2	3	1
Perry	8	..	6	1
Piatt	3	..	..	..
Pike	4	..	1	..
Pope	2	1	1	..
Pulaski	..	..	12	1
Putnam	1	..	1	..
Randolph	10	..	12	1
Richland	2	..	1	1
Rock Island	36	..	14	2
East Moline	16	..	..	..
Moline	6	..	3	..
Rock Island	6	..	6	1
St. Clair	49	6	14	..
Belleville	14	1	..	..
East St. Louis	28	3	2	..
Saline	10	1	9	1
Harrisburg	2	1	3	..
Sangamon	23	2	16	1
Springfield	17	2	11	1
Schuyler	7	..	..	..
Scott	2	..	1	..
Shelby	2	..	7	1
Stark	1	..	..	..
Stephenson	7	..	..	1
Freeport	3	..	..	1
Tazewell	15	..	6	..
Pekin	2	..	2	..
Union	5	..	12	2
Vermilion	64	1	9	1
Danville	42	..	5	1
Wabash	3	..	1	..
Warren	2	..	5	1
Washington	2	..	1	..
Wayne	6	..	5	..
White	17	1	7	..
Whiteside	5	..	..	..
Sterling	4	..	..	..
Will	12	..	24	3
Joliet	3	..	11	3
Williamson	7	2	7	2
Winnebago	3	2	..	..
Rockford	3	..	..	..
Woodford	5	..	..	..
Total	1786	167	566	71

THE USE OF ERGOTAMINE TARTRATE IN THE TREATMENT OF THE TABETIC BLADDER

E. Palmer, M. D., and J. T. Gernon, M. D.
CHICAGO

In a previous paper we[1] described our experiences with the use of ergotamine tartrate ("gynergen") in the treatment of the neurogenic

From the Department of Urology of the University of Illinois and Research Hospital, Chicago, Illinois.

The gynergen (ergotamine tartrate) was supplied through the courtesy of the Sandoz Company.

bladder of tabetic origin. This paper is intended merely to elaborate upon our former study.

The sympathetic vesical nervous supply effects stimulation of the vesical (internal) sphincter

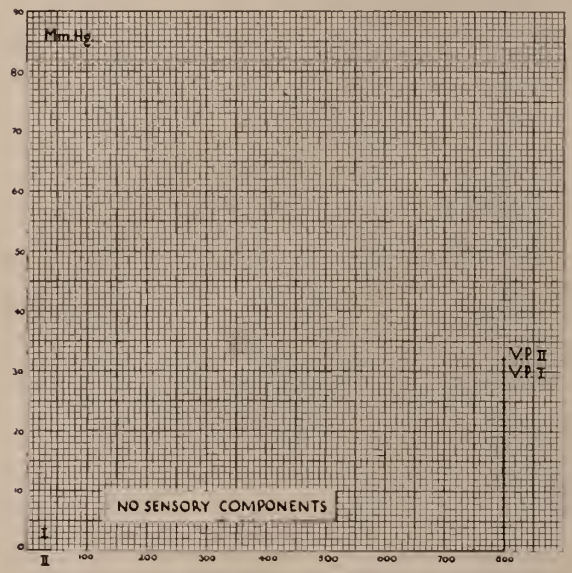


Figure 1. Cystometrogram before treatment.

and inhibition of the detrusor muscle. The sympathetic effect upon the sphincter is generally admitted. However, there is considerable discus-

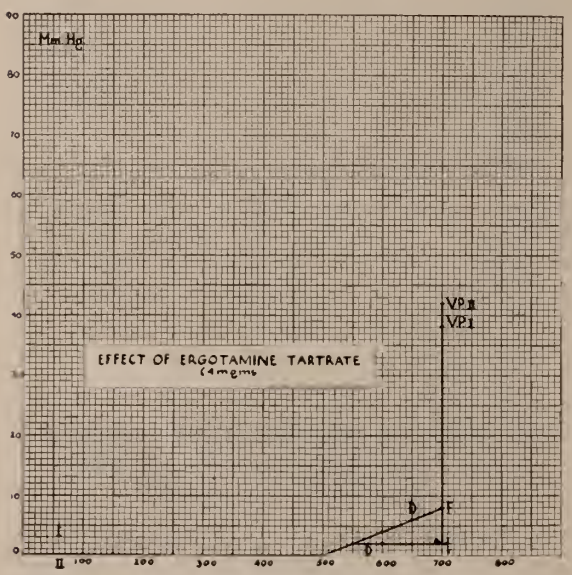


Figure 2. Cystometrogram after two weeks therapy with ergotamine tartrate.

sion as to the existence of the assumed inhibitory action upon the detrusor. Nevertheless there seems to be definite evidence for the existence of inhibitor sympathetic fibers to the detrusor of the bladder. Thus, Learmonth[2] produced dilatation of the bladder after intravenous injection of adrenalin. Presacral neurectomy is followed frequently by a transient frequency, ascribable to the loss of the inhibitory sympathetic impulses. Langworthy, Reeves and Tauber[3] showed that section of the sympathetic pathway (in cats) decreased the volume of both the normal bladder and the enlarged bladder produced by parasympathectomy. The sympathetic nerve fibers convey the sensation of overdistention and pain in the bladder and partly in the posterior urethra, or, more correctly stated, the afferent (sensory) fibers "simply happen to travel in the same sheaths with bundles of sympathetic fibers."

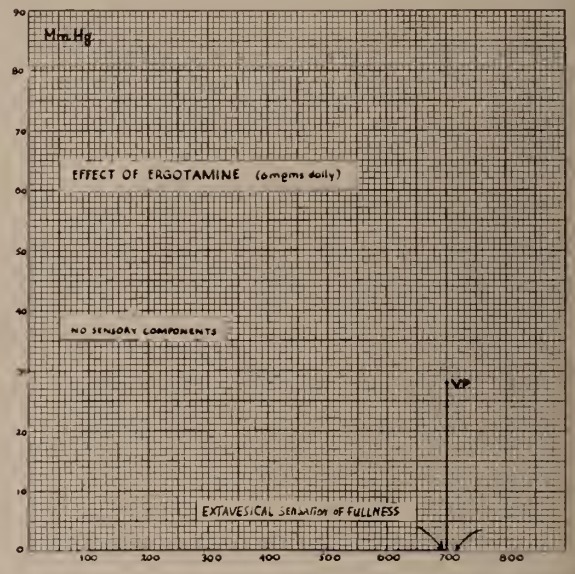


Figure 3. Cystometrogram after one week further therapy with increased dosage of ergotamine tartrate.

Furthermore, the autonomic (sympathetic and parasympathetic) pathways carry impulses which produce antagonistic effects. This has been questioned by some investigators. Watkins[4] says, "It is now established both on clinical grounds and by the work of Macdonald and McCrea[5] that the pelvic and hypogastric nerves are not directly antagonistic in their action upon the detrusor muscle. Either nerve can promote contraction or relaxation according to varying conditions." Experimentally, the factors which determine the type of response following electrical or chemical (autonomic drug) stimulation are muscle tonus, nature and depth of anesthesia, strength and duration of the stimulus. Wollard[6] also questions the mechanistic conception of the fixed antagonism between sympathetic and parasympa-

thetic activity (in the gut). He states, "This is an oversimplification of the problem for the results of all animal experiments concur in suggesting that the antagonism between the two systems is nothing like so sharp; that both systems can sometimes act either as augmentors or inhibitors, and that the action which occurs depends on the tonus of the gut muscle at the moment of the inquiry." This conception tends to confuse matters a great deal. Modern opinion[7] favors the old conception of a fixed mutual autonomic antagonism. Thus presacral neurectomy is based on the hypothesis of a balanced vesical innervation.

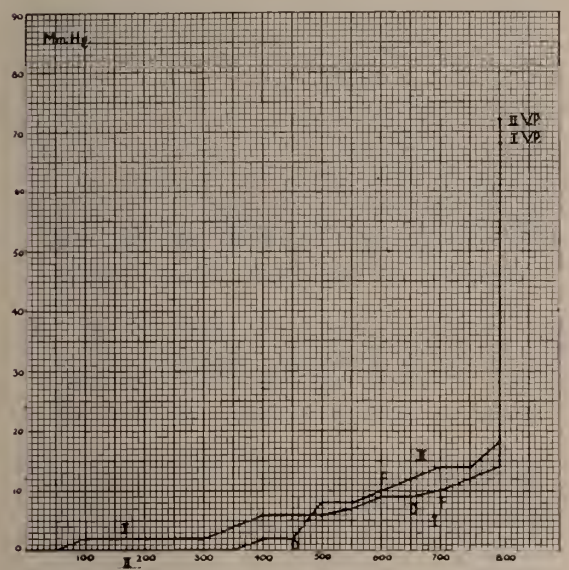


Figure 4. Cystometrogram before treatment.

The pathology of the neurogenic bladder in tabetics is due to degeneration of the proprioceptive fibers in the posterior roots of the sacral nerve segments. This has been proved experimentally in animals.[8] The vesical atonicity, hence is due to the sensory disturbance. We believe, however, that the stimulating effect of the sympathetic on the vesical sphincter plays an important role in maintaining this overdistention. In an effort to overcome this added factor we began the use of ergotamine tartrate clinically. We have found recent experimental confirmation for this theoretical assumption in the work of Dees and Longworthy,[9] who reported that sympathetectomy had a favorable influence upon the large bladder produced by section of the posterior sacral nerves. They ascribed this effect partly to the lowered sphincteric tone. Possibly the elimination of the inhibiting sympathetic impulses to the detrusor may also play a role in this action. Beneficial effects on the bladder were also noted in some cases of tabes following sympathetectomy.

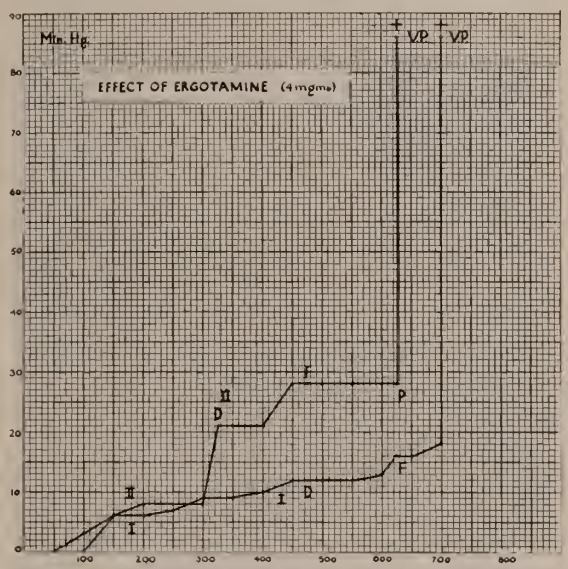


Figure 5. Cystometrogram after two weeks' therapy with ergotamine tartrate.

From a small series of patients we shall discuss in detail five typical cases, with cystometrograms before and after ergotamine tartrate therapy. The dosage of ergotamine tartrate was four milligrams daily by mouth. This therapy was continued from two to four weeks. No toxic

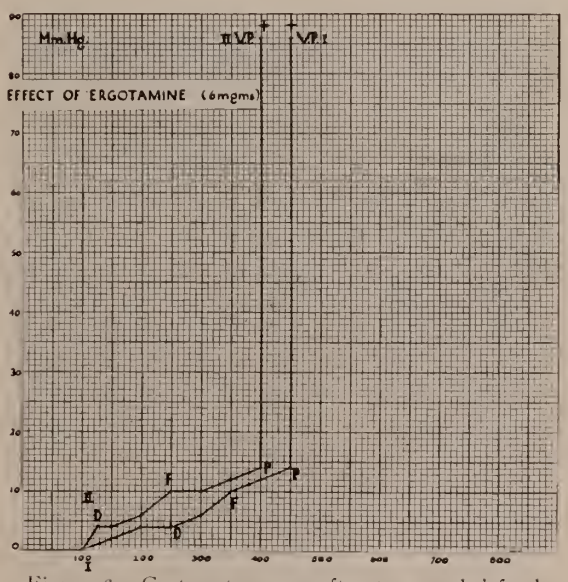


Figure 6. Cystometrogram after two weeks' further therapy, with increased dosage of ergotamine tartrate.

results were noted in any case. Smears and cultures were taken in each case to note the effect of infection: the results were similar in both the infected and non-infected cases.

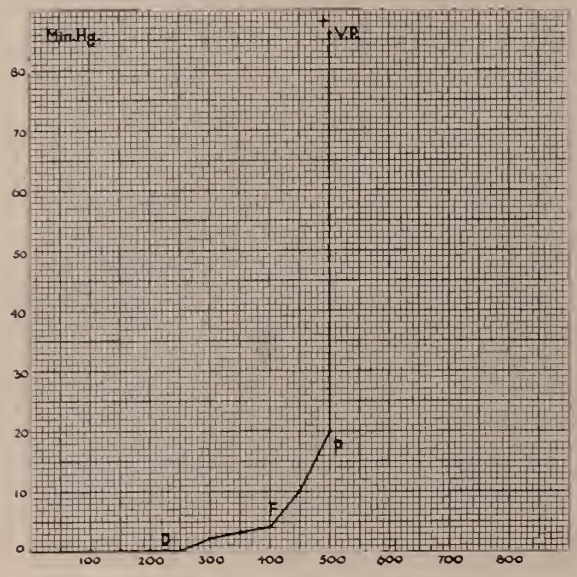


Figure 7. Cystometrogram before treatment.

Case 1. A. Z., female, housewife, aged 46 years, was admitted to the Urological Department with the complaint of nocturia once each night and incontinence of three years duration upon sneezing, coughing or running.

Past History: Four children living and well; no miscarriages. Last childbirth was seventeen years ago. She has been receiving treatment for syphilis for three years. Mother living and well. Father died in accident.

Urological examination reveals a patient with a lax abdominal wall. Residual urine 90 c. c. A catheterized urine specimen revealed 12 pus cells per high power field. Culture of the urine revealed B. coli. The Wassermann and Kahn test of the blood was 4 +. A cystocele (grade iii) and rectocele were present.

Cystoscopy revealed a bladder of large capacity. Fine generalized trabeculation was present throughout the bladder wall. The mucosa was chronically inflamed. The ureters were normal. There was no bladder neck obstruction. Urethral hypesthesia was noted.

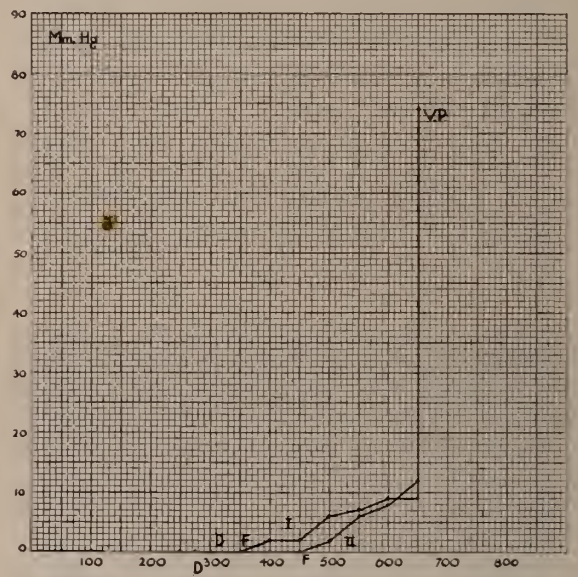


Figure 9. Cystometrogram before treatment.

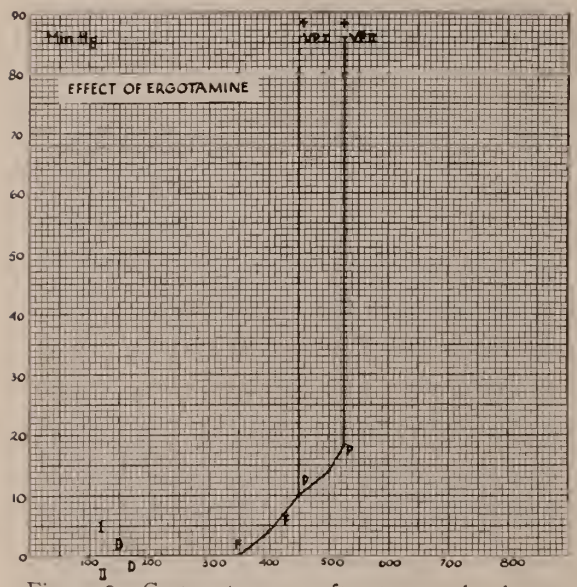


Figure 8. Cystometrogram after two weeks therapy with 4 mgms. of ergotamine tartrate daily.

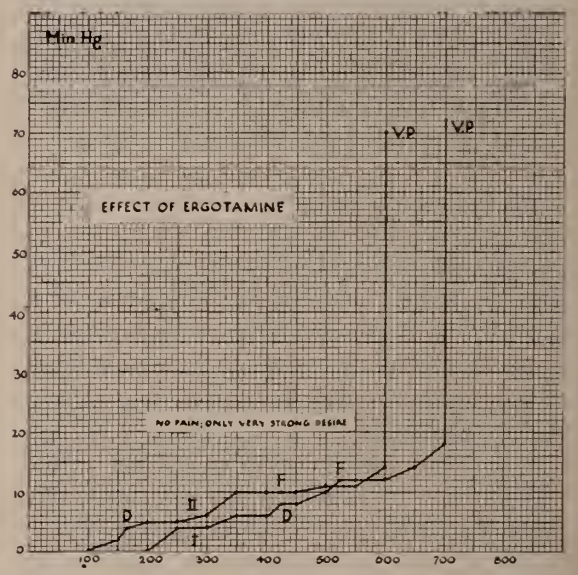


Figure 10. Cystometrogram after two weeks' therapy with 4 mgms. of ergotamine tartrate daily.

The patient was referred to The Department of Neurology for the relief of shooting pains in both legs of six months' duration. Physical examination revealed no deformities, no asymmetries and no atrophies, trophic or vasomotor disturbances, although the patient complained that her feet were always cold. There was no cranial nerve disturbance and the somatic motor nerves were normal. The patient could not distinguish between the sensations of sharp and dull in the legs and feet, and was unable to distinguish warm and cold in

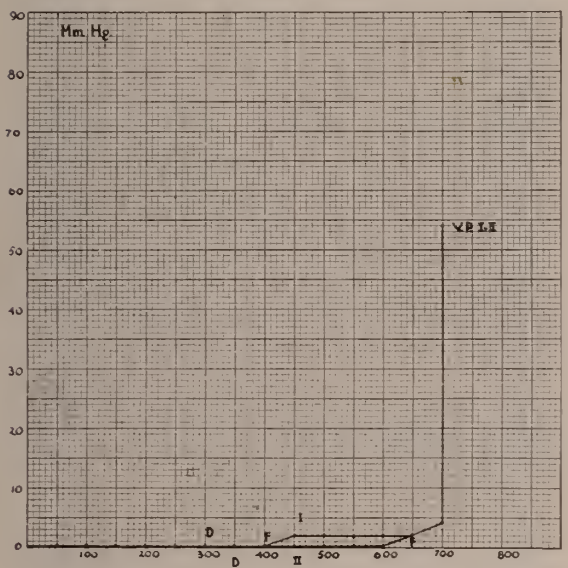


Figure 11. Cystometrogram before treatment.

the lower extremities. Deep sensibility was normal as was stereognosis. The Argyll-Robertson pupil was present and the knee jerk was absent. With the exception of a slightly positive Babinski on the right side, the reflexes were normal. Romberg's phenomenon was positive. The neurologic diagnosis was tabes dorsalis.

A cystometrogram (Fig. 1) was done. It showed absent sensory components with 800 c.c. of fluid in the bladder. The involuntary pressure curve was flat. Voluntary pressure was low with a pathological bladder capacity but the sphincteric control was good. The emptying pressures were zero. There was no change in the second curve. A diagnosis of neurogenic bladder of tabetic origin was made although the cystocele was partly responsible for her urinary difficulty.

After two weeks therapy with ergotamine tartrate the cystometrogram (Fig. 2) showed an appearance of a desire to urinate and a sensation of fullness. These were absent originally. The involuntary pressure showed a slight late rise. There was no change in the voluntary pressure. Had the previous cystometrogram been taken with more fluid, this second cystometrogram would undoubtedly have shown diminished vesical capacity. There was no change in sphincteric control or emptying pressure. The second curve is slightly more hypotonic.

Clinically the urinary force was unchanged but the frequency of urination was increased. The bladder control was better and incontinence was less annoying. Increase in the daily dosage of ergotamine tartrate to 6 mgms. for one week produced no change in the cystometrogram (Fig. 3) but the incontinence, undue frequency and urgency disappeared.

Case 2. Male, aged 50 years, salesman, was admitted to the Urological Department May 6, 1932, with a diagnosis of chronic epididymitis.

Family History: Wife living and well. Two brothers and one sister living and well. Father died at 62 from pneumonia. Mother died at 75 with cancer of the stomach.

Past History: Patient had undergone intensive treatment for syphilis for two years at the age of 20 and since that time has had occasional treatment. He had an operation for varicose veins at 18.

Further urological investigation revealed that the patient had nocturnal incontinence of four years' duration. He had no initial difficulty in urination but urinated in spurts. The residual urine was 10 cc Rectal examination revealed normal sphincter tone. The prostate was negative. Examination of the urine was negative, with a sterile culture. The Wassermann on the blood was negative.

Cystoscopy revealed fine diffuse trabeculation of the bladder wall. The vesical neck was relaxed, with diminished posterior urethral sensibility. The prostate showed early bilateral lobe hypertrophy.

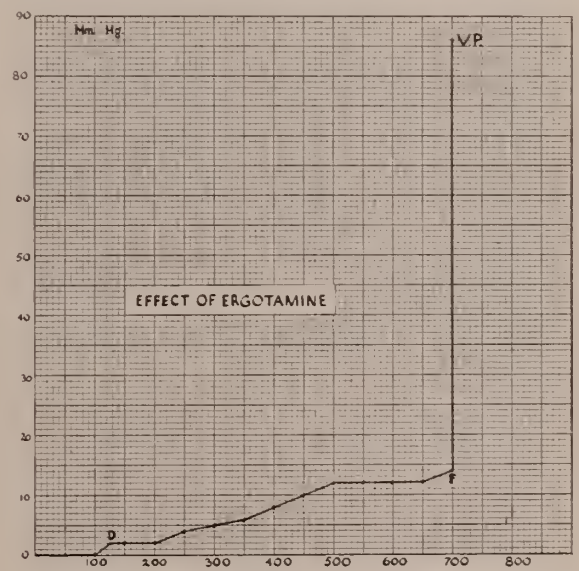


Figure 12. Cystometrogram after two weeks' therapy with 4 mgms. of ergotamine tartrate daily.

The patient was referred to The Department of Neurology. He complained of severe pains in both lower extremities. Examination revealed no asymmetries, no deformities and no trophic or vasomotor disturbances. The right pupil was larger than the left and neither pupil reacted to light. The knee jerk on both sides was absent. Spinal fluid Wassermann was positive. The neurologic diagnosis was tabes dorsalis.

A cystometrogram (Fig. 4) showed marked displacement of sensory components to the right. There was

no pain of overdistention with 800 c.c. of fluid. There was a very gradual ascent of involuntary pressure (hypotony). The voluntary pressure was normal, but could not long be maintained and there was a pathological bladder capacity. The sphincter control was competent. The emptying pressures (4-0-0) showed practically no residual contractility. The diagnosis was a neurogenic bladder of tabetic origin.

Four milligrams of ergotamine tartrate were given daily for two weeks and the cystometrogram (Fig. 5) then showed: Curve 1, shifting of desire to void and sensation of fullness to the right (hypesthesia). Curve 2, shows no change in desire and sensation of fullness; the pain of over-distention appears in this curve. The sensory components occur at higher intracystic pressures. The involuntary pressure shows an earlier and higher rise; there is no change in the voluntary pressure. There is a diminution in vesical capacity; no change in sphincteric control and the curve shows that the bladder tonicity is decidedly better. The emptying pressures (36-14-0) were markedly improved.

Clinically the patient had better force with increased frequency of urination. His control was better and starting to urinate was easier. He had less terminal dribbling and his sexual power was improved.

Gynergen was given for an additional two weeks in the dosage of six milligrams a day. The cystometrogram (Fig. 6) at the end of this period showed further displacement of sensory components to the left. The involuntary pressure curve was not changed nor was the curve of voluntary pressure. The vesical capacity was further diminished. The emptying pressure and sphincteric control was not changed.

Clinically the patient had good control with better force. The desire to urinate was more acute and there was less hesitancy. The frequency was the same. There was no residual urine.

Case 3.—V. C., white male, plasterer, aged 47 years, was referred to Urology on July 18, 1934. He had no urinary complaints.

Past History: Typhoid fever in 1903. Denied having had a chancre.

Family History: Wife living and well; married 21 years; no pregnancies.

Urological examination revealed poor force of the urinary stream. The patient had no residual urine. Culture revealed urine infected with the colon bacillus. Rectal examination disclosed the prostate to be negative; there was moderate relaxation of the anal sphincter.

Cystoscopy: Fine trabeculation was seen on the posterior wall with early bilateral lobe hypertrophy. The vesical neck was spastic and posterior urethral hypesthesia was present. Wassermann test was negative.

Patient was referred to The Department of Neurology with the complaint of a loss of the sense of balance of four years duration becoming gradually worse. Examination revealed a marked ataxic gait with a 4+ Romberg. The cranial nerves and ocular fundi were normal. Hypotonia was present with ataxia on the knee-heel test. Superficial sensation was good while deep sensation was absent. Stereognosis was normal. The pupils reacted very sluggishly to light. The other reflexes were normal. The spinal fluid Wassermann was negative. The total protein was .028 per cent. The gold curve was 0124555210. The neurologic diagnosis was tabes dorsalis.

A cystometrogram (Fig. 7) was taken which showed displacement of sensory components to the right and a low late rise of involuntary pressure (hypotony). The voluntary pressure was excellent but transient. The vesical capacity was somewhat large and the sphincteric control was competent. The emptying pressures were zero. A diagnosis of early tabetic bladder was made.

Ergotamine tartrate was administered in doses of 4 mgms. daily for two weeks. A second cystometrogram was made and showed slight shifting of sensory components to the right. This occurred at increased pressures. There was a late increase in involuntary pressure with a slight increase in voluntary pressure. The vesical capacity was slightly increased. There was no change in the sphincteric control or emptying pressures. The force of the urinary stream was better. The frequency and ease of starting urination were unchanged.

Case 4.—F. L., male, laborer, aged 57 years, admitted to the Urological Department on July 12, 1935, complaining of initial difficulty in urination with dysuria and occasional nocturia and urgency.

Past History: Patient had a chancre in 1923; pleurisy in 1927.

Family History: Mother and father dead; three sisters living and well.

Examination revealed a hypersensitive posterior urethra with a spastic vesical neck. The anal sphincter was spastic and the prostate showed infection, grade 1. Urine was infected (staphylococcus albus). Urinalysis was normal and there was no residual urine.

The Blood Wassermann was negative. The spinal fluid was under increased pressure and the Wassermann and Kahn tests were negative. Pandy was negative. Cell count was 9 lymphocytes. The colloidal gold reaction showed a typical tabetic curve.

The patient was referred to the Department of Neurology with the complaint of pain and numbness in the back and legs. The examination was negative with the exception of an Argyll-Robertson pupil. The neurologic diagnosis was tabes dorsalis.

Cystoscopy revealed a chronic infection of the bladder with fine generalized trabeculation and early bilateral lobe hypertrophy of the prostate.

Cystometrogram (Fig. 9) revealed slight shift of sensory components to left, which occurred at zero pressure. There was a retarded, slight rise of involuntary pressure (hypotony). The voluntary pressure was good. The sphincter was competent. The vesical capacity was pathological. The second curve was slightly more hypotonic and the emptying pressures were zero. The diagnosis was neurogenic bladder of tabetic origin.

Ergotamine tartrate, 4 mgms. per day, was given for two weeks and a cystometrogram (Fig. 10) then showed in curve 1 the sensory components shifting

slightly to the right. In curve 2 the components were shifted to the left. Thermal sensation was negative. There was an earlier and higher rise of involuntary pressure. There was no change in the voluntary pressure, vesical capacity or sphincteric control. The emptying pressures were slightly increased. The second curve was slightly less hypotonic.

Clinically, the force of the urine was slightly decreased but starting to urinate was easier. The control and frequency were the same but the desire to urinate was more acute. Constipation was much relieved.

Case 5:—A. B., performer, aged 37 years, was admitted to the Urological Department on July 21, 1933. He complained of nocturia once, urgency and partial incontinence. He had the sensation that the bladder was not empty after urination and said he felt some obstruction.

Past History was negative with the exception of a chancre in 1917 which was treated.

Examination revealed spasticity of the anal sphincter (Grade 2) and bilateral lobe benign prostatic hypertrophy (Grade 2). There was mild urethral hypesthesia. The urine was infected (B. coli) and the residual urine was 200 c.c. The blood Wassermann was negative and the urine showed pus cells.

Cystoscopy revealed moderate posterior wall trabeculation with chronic infection of the bladder wall. Early bilateral lobe hypertrophy was present. The spinal fluid Wassermann was negative.

The patient was referred to the Department of Neurology with the complaint of shooting pains in the lower extremities and weakness. Examination revealed a dry skin involving the lower extremities. The lower limbs were slightly spastic. Deep sensibility of the left foot was impaired. Pupils reacted sluggishly to light. The knee jerk exaggerated bilaterally. The Romberg was positive. The neurologic diagnosis was tabes dorsalis.

A cystometrogram (Fig. 11) was done and showed shifting of sensory components to the right with no pain of overdistention at 700 c.c. There was practically no rise of involuntary pressure (hypotony). The voluntary pressure was somewhat low and poorly sustained. The bladder capacity was pathologically large. The sphincteric control was competent. The sensory components occurred at zero pressure. The two curves were practically identical. The emptying pressures were somewhat low. Diagnosis was a neurogenic bladder of tabetic origin.

A second cystometrogram (Fig. 12) was taken after ergotamine, 4 mgms. a day, had been given for two weeks. No thermal sensation was noticed. The desire to void was shifted to the left and the sensation of fullness to the right. The involuntary pressure underwent an early and gradual increase. There was no change in the voluntary pressure, vesical capacity or sphincteric control. The emptying pressures were increased.

Clinically the force of urination was increased. Ataxia was decreased. Frequency was increased and the condition of the patient's bowels was improved.

Unfortunately only two of the previous cases have reported back for observation as to the permanency of the therapy with ergotamine tartrate. One patient developed a recurrence in three months and the other patient twelve months following cessation of treatment. Probably the continued beneficial effect of ergotamine is dependent upon the renewal of its administration whenever required by the condition of the patient.

CONCLUSIONS

We realize that positive conclusions cannot be drawn from a small series of cases. Ergotamine tartrate (gynergen) in the dosage of 4 mgms. a day produced subjective improvement in all cases observed while four were improved cystometrically. While further study of the tabetic bladder is necessary, we feel that ergotamine may have a place in the treatment of this unfortunate condition. Essentially its action is that of a medical sympathetectomy. It may be used to determine which cases of neurogenic bladder may benefit from a presacral neurectomy.

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25 East Washington Street.

MESENTERIC VASCULAR OCCLUSION

Report of case of complete occlusion of Superior Mesenteric Artery with involvement of practically the entire small intestine.

MARSHALL S. UNDERHILL, M. D.
EVANSTON, ILLINOIS

The subject of mesenteric vascular occlusion has been frequently discussed in Medical literature since it was first identified by Tiedemann[1] in 1843, it is still of sufficient rarity to warrant the reporting of cases as they are observed in order that more information might be gathered concerning its nature and behavior, eventually leading to its earlier recognition and more successful treatment.

Historical. Tiedemann[1] in 1843 first identified the lesion, and Virchow[2] in 1847 accurately described its pathology. It was not before 1863, however that the first clinical description of this entity was recorded by Kussmaul.[3]

Incidence. Owing to the fact that the diagnosis of the disease is most frequently made at operation or autopsy, it is difficult to estimate the frequency of mesenteric vascular occlusion. Some idea can be obtained from reports such as these: Robey[4] found 51 cases from the records of the Boston City Hospital over a period of thirty-three years. Boyce and McFetridge[5] were able to collect 13 cases from 30,000 admissions to the New Orleans Charity Hospital over a period of seven and one-half years, ending May, 1935.

Incidence of age and sex. Mesenteric thrombosis is a disease of middle age. Men are more frequently effected than women as indicated in the series of Larson[6]—26 men to 10 women.

Etiology. The exact cause of mesentery thrombosis is not ascertainable in the majority of cases thus the clinician should never exclude a diagnosis of mesenteric thrombosis for lack of an etiological factor.

Pathology. Litten[7] demonstrated that occlusion of the superior mesenteric artery by a thrombosis acted physiologically exactly like ligation of any end artery. A survey of reported cases discloses that the superior mesenteric artery is more frequently involved than is the vein. Eisenberg[8] reports 60% artery to 39% vein, and that in about 90% of cases it was the superior mesenteric artery that was occluded and in only 10 % the inferior.

Klein[9] has clearly summarized the possibilities in vascular occlusion of intestinal arteries: 1. the establishment of a competent collateral circulation resulting in no serious results to the intestinal mechanism; 2. intestinal obstruction without infarction due to incomplete occlusion where sufficient blood can reach the involved segment of affected bowel to maintain its nutrition but not enough to enable it to carry on its peristalsis; 3. intestinal infarcation varying from the mildest form in which the mucosa alone is involved to a condition where the entire wall of the gut is gangrenous.

Various explanations have been advanced to explain why occlusion of the superior mesenteric artery acts exactly like the occlusion of an end artery when we know that the intestine is extremely rich in collateral circulation. Boyd's[10] explanation is that when a block occurs in the artery, violent spasms of the intestinal musculature are started which cause a further anemia of the involved segment, thus establishing a vicious cycle with resultant gangrene of the involved segment.

Symptomatology. Speaking strictly of the symptomatology of thrombosis of the superior mesenteric artery, it is that of an ever changing pathological picture from early acute intestinal insult to generalized peritonitis and bowel gangrene. The clinical findings therefore depend upon the pathology present at the particular time the patient is encountered. The case reported was observed from two hours from the onset of the disease to death.

The cardinal symptoms are pain, sudden in onset and excruciating in nature, paroxsymal or constant and usually generalized over the entire abdomen. Vomiting practically always accompanies the pain. In the fulminating cases shock

is frequent. Abdominal distension is usually present increasing in severity as the pathology progresses. Peristalsis is absent.

Fever is rare at the onset although it practically always exists in the later stages. The pulse rate is usually elevated even in the absence of a rise in temperature. Abdominal rigidity is lacking in the earlier stages present with the developing peritonitis. Leucocytosis is high ranging from 15,000 to 30,000. According to Boyce a tendency for the blood pressure to fall is a significant finding, in the case reported there was a definite fall in the systolic blood pressure from 184 to 145 but this was attributed to a failing heart.

The pain from thrombosis of the superior mesenteric artery may simulate that associated with any intra-abdominal catastrophe particularly acute hemorrhagic pancreatitis. The absence of early rigidity clearly differentiates it from ruptured ulcer unlike cases of intestinal obstruction visible peristalsis cannot be elicited. Superior mesenteric arterial thrombosis should be suspected when a patient of middle age presents himself complaining of severe abdominal pain with physical findings completely out of accord with severity of the symptoms with a temperature normal, but with a pulse rate increasingly rapid and a high leucocytosis.

Treatment. The treatment of superior mesenteric arterial thrombosis is exploratory laparotomy because of the fact that the extent of the involvement due to the location of the thrombus is always in doubt. Of all the procedures attempted in this disease the only one holding forth any hope is enterectomy; it seems to be not a question of how much gut is resected but what stage of pathology is present when the intestine is resected. With the abdomen open it may be hard to predict the subsequent course of the extent of the involvement as in the case reported. I feel sure there was a second extension of the involvement between the third and fourth day of the disease and had I operated upon this patient early and resected considerable gut the operation would have been a failure because of the further extension.

Case report. Mrs. E. T. Housewife (white), aged 38 years, referred to me by Dr. C. Laury, Chicago. First visit 9:00 a. m., August 29, 1936. Patient stated she had enjoyed good health until 7:00 a. m. that morning, when she was awakened with a dull pain in the abdomen and the sensation that she had to defecate. Relief was obtained by a bowel movement and patient returned to bed. At 8 a. m. the patient suffered severe epigastric pain with nausea and vomiting which persisted until I arrived.

Past history was negative other than the patient had St. Vitus' dance as a child of 12 years; she had suffered with constipation for 10 years and weighed 245 lbs. married 16 years, never pregnant.

Physical examination at home: Obese adult female (weight 245 lbs.). Temperature 97.0, conscious, restless, complaining of excruciating pain in abdomen not referred, bowels had moved recently. Eyes, ears, nose and throat negative, chest negative, abdomen tender but not rigid; cardiovascular, B. P. 184/103, pulse rate 90, soft systolic murmur at apex transmitted to axilla, no dyspnea or cyanosis. G. U. negative for frequency, urgency or burning on urination. Extremities negative, reflexes normal. A tentative diagnosis of gall bladder disease with stones or mesenteric thrombosis was made and the patient sent to St. Francis hospital, Evanston, after administration of codeinae sulphate ½ grain by hypodermic. Subsequent examination at the hospital showed urine negative, white blood count 15,450.

Subsequent course at the hospital. The patient continued to vomit frequently for the next eight hours and then had occasional emesis. The temperature rose to its maximum of 101° by the following day and she continued to suffer with abdominal pain for the following two days. On the morning of the third day the patient was much improved, pulse was down and temperature normal. The abdominal pain had almost subsided and the patient took fluids by mouth freely. This condition continued all day and the patient was told that I now favored the diagnosis of gall bladder disease and if she continued to improve, I would let her go home to recuperate. Abdominal exploration on this case was considered from the beginning but because of the poor surgical risk, it seemed advisable to escape it if possible. This state of apparent recovery continued until 9 p. m. of the 3rd day of the disease when the patient again was seized with excruciating abdominal pain and vomiting with no relief from narcotics by hypodermic. At 8 p. m. on the 4th day of the disease consultation was had with Dr. James G. Carr of Evanston, who declared for a surgical abdomen and that surgery was the correct treatment. By this time there was a definite drop in the systolic B. P. from 185 to 145 but as it occurred with a decided climb in the pulse of 100 to 140 beats per minute, I attributed it to a failing heart. Two subsequent W. B. C. showed a leucocytosis of 24,300 on the 2nd day and 23,500 on the 3rd day.

Operation. Operation began at 10:15 p. m. on the 4th day of the disease. Under gas anesthesia, a right rectus incision above and below the naval was made and on opening the abdomen the small intestine from the beginning of the jejunum to within 15 cm. of the ileocecal valve was found to be gangrenous. Because I was sure I was dealing with a thrombosis of the superior mesenteric artery near its stem, no attempt was made to resect the intestine and an ileostomy was done as a palliative measure. The patient regained consciousness and died the following a. m. at 7 o'clock.

Autopsy No. 36A10. By Dr. O. T. Schultz, pathologist at St. Francis Hospital, Evanston, Illinois.

Anatomic Diagnosis:

Hemorrhagic infarction and gangrene of small intestine.
Thrombosis of superior mesenteric artery.
Cloudy swelling of myocardium, liver and kidneys.
Moderate chronic interstitial nephritis.
Chronic mitral endocarditis with insufficiency.
Recent laparotomy incision.

External Examination:

The body is that of an obese young white woman 66¼ inches tall. The pupils are equal and contracted. The skin is not jaundiced. In the midline of the abdomen is a recent sutured surgical incision which extends upward 27 cm. from the symphysis pubis. The abdomen is moderately distended. The ankles do not pit on pressure. Rigor and livor are absent. The examination is begun 2 hours after death.

Internal Examination:

The layer of subcutaneous abdominal fat is 5 to 6 cm. thick. Opening of the abdominal incision is followed by the escape of a small quantity of cloudy, dark bloody fluid. The peritoneal cavity is free of adhesions. The pericardial sac is free of adhesions and excess liquid. The left pleural cavity is obliterated by fibrous adhesions which everywhere unite the lung to its surroundings. The right pleural cavity is free of adhesions and excess liquid.

Heart: The heart is slightly enlarged, the increase being in the left ventricle. The mitral orifice admits the tips of two fingers. The mitral valve segments are somewhat shortened and thickened and nodular at their margins. The remaining valves are normal. The wall of the left ventricle is 2 cm. thick. The muscle is greyish brownish red and cloudy. The root of the aorta and the coronary arteries are normal.

Lungs: The lungs are everywhere crepitant. On section the posterior portions are congested and considerable fluid escapes from the cut surfaces.

Spleen: The spleen is slightly enlarged. The cut surface is dark red and rather soft. Traneculae and malpighian bodies are not increased.

Liver: The margin of the liver extends slightly beyond the right costal margin. The capsule is smooth. The ducts and gall bladder are free of adhesions. The gall bladder is distended by dark brown bile in which are no concretions. The liver sections without increased resistance. The cut surface is pale yellowish brown and lobulation is indistinct.

Gastrointestinal Tract: The presenting coils of small intestine are dark red in color and their surface is lusterless. The entire small intestine from the beginning of the jejunum to within 15 cm of the ileocecal valve is involved in the hemorrhagic process. In the uninvolved terminal portion of the ileum a rubber tube of large caliber penetrates the wall and is held in place by sutures. The involved intestine is considerably distended and is filled with thick, dark bluish red liquid material. The mucosa is hemorrhagic and opaque. The superior mesenteric artery is occluded by fresh, dark red thrombus for a distance of about 2 cm from its mouth. At one margin of the mouth a polyplike mass of white, firmer thrombus is attached and extends into the artery. In the aorta in this region is a flattened area of thickening about 1 cm in diameter. Its surface is smooth. On section the tissue at its center is yellow. The abdominal aorta lower down has several areas of calcification. The stomach contains about 500 cc of greenish milky fluid; the mucosa, pylorus and duodenum are normal. The large intestine reveals nothing of note.

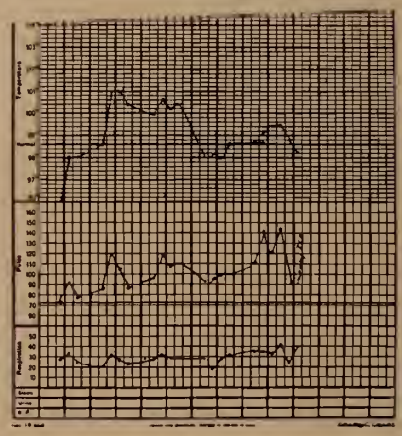


Chart 1. From the history of a case of thrombosis of the main stem of the Superior Mesenteric Artery showing the apparent recovery between the 3rd and 4th day which made the correct diagnosis difficult.

Kidneys: The kidneys are slightly decreased in size. Each measures 10 by 4 by 3 cm. The capsule is more firmly attached than normal. The stripped surface is finely granular. The kidney sections with slightly increased resistance. The cortex is dark red in color, about 5 to 6 mm thick, and is fairly well delimited from the medulla. The pelves and ureters are normal.

Adrenals: Negative.

Pancreas: The pancreas is pale and is normal in consistency.

Pelvic Organs: The bladder is contracted. The uterus and adnexa are normal except for a fibromyoma 2 cm in diameter in the left cornu of the uterus.

Summary. 1. A case of thrombosis of the main stem of the superior mesenteric artery of unknown etiology is reported.

2. Occlusion of the main stem of the superior mesenteric artery is one of the most fatal of all abdominal catastrophies.

3. Nowhere in the practice of medicine or surgery will a professional man be called upon to exercise his ability of clinical or surgical

judgment more than in a case of thrombosis of the superior mesenteric artery.

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ORGANIC INFERIORITY OR ALLERGIC CONDITIONS IN SURGERY AND GYNECOLOGY

WALTER W. VOIGT, M.D., F.A.C.S.
CHICAGO

Cases have been reported in which circumscribed edema affecting the organs of the abdomen, the pelvis and the retroperitoneal region seemed to demand an immediate operation. Guetig reports a case which was operated upon as an appendicitis but showed no alteration whatever in the appendix, whereas the retroperitoneal region of the cecum was so badly puffed up that it felt like a soft pillow. At the same time the patient showed an itching, urticaria-like rash that might have indicated a similarity between the cutaneous eruption and the process in the lower abdominal region.

The writer encountered a case which seemed to demand immediate tracheotomy. The patient was a seventy-three year old man who awakened one morning suffering from severe itching of the skin. After luncheon he lay down for a short nap, and on awakening noticed that his tongue was so thick that he could hardly speak. It seemed to fill the oral cavity. He felt sick and weak, and when he presented himself his voice was scarcely audible and he had great difficulty in breathing. The tongue was greatly enlarged and protruded from the mouth, pushing the lips outward. His wrists were swollen and the skin showed numerous scratches and welts. The itching, the welts and the scratches brought to mind an angioneurotic condition.

Although the danger of suffocation increased steadily no tracheotomy was done. Blood was drawn from a vein for examination. Ten cubic centimeters of calcium gluconate were injected followed by one ampule of parathormone. Adrenalin was kept handy in case the calcium should not take effect. Calcium was used because of its properties of increasing cellular density. The action of calcium can be readily observed if one treats the mesentery of a frog with sodium chloride solution and then with a calcium solution. In the first instance the result is a dilation of the capillaries and a swelling of the tissues, which can be reversed by calcium.

In this patient the injection took effect in a few minutes. The difficulty in respiration abated, the tongue gradually subsided to its normal size and shape. The patient was sent to the hospital where the history showed that he suffered from chronic bronchitis and had asthmatic attacks which became more acute and frequent in spring and early winter. He also had frequent headaches. His blood pressure was 140/78. Orthopnea was present. Further questioning revealed that he was accustomed to eat large quantities of fruit, that he had often had hives and that there was a history of hay fever in his family.

The blood drawn previous to the calcium injection showed a low calcium content. The leukocyte count was 16,000 with 54% polymorphonuclears and 4% eosinophilis. The urine was negative for albumin and sugar. His evening temperature was 99.4. Capillaroscopy showed wavy and partly corkscrew-like capillaries which upon extended treatment and a change of diet assumed a straighter shape without, however, getting back to perfect normalcy.

This was a case of a patient suffering from hereditary allergy and from asthma personally who, as a result of faulty nutrition, had developed calcium deficiency which his inferior parathyroid glands had been unable to compensate, although in the osseous system of a man of his age one might well presuppose a sufficient quantity of calcium.

A second case was that of a young man of thirty-four who was the very image of a neurasthenic, laboring under every possible complaint. He complained of constipation with alternating sieges of diarrhea, headaches and loss of appetite, of being very nervous and unable to ply his vocation as a draftsman, of general debility, listlessness about work, and poor sleep.

He looked very pale and his blood test showed a hypochromic anemia. The abdomen was badly distended with gas and the diaphragm was high. The stomach juices showed no free hydrochloric acid. The blood sugar was low. There was a scar from an appendectomy done several years previously. The reflexes were exaggerated. There was no pathology about the heart and lungs. The ascending colon was

heavily packed with feces which could not be entirely removed with enemas. The stool was exceedingly foul smelling. X-ray examination showed apparent adhesions of the transverse colon at about its middle with the cecum, which caused an acute angled flexion at the hepatic flexure and a second identical flexure at the point of adhesion with the cecum. The ascending colon and part of the transverse colon ran parallel, like the barrels of a double barreled rifle. The diagnosis was chronic stenosis of the bowels due to adhesions, resulting in constipation and fecal decomposition, and the patient's neurasthenic state was ascribed to this condition.

At operation the x-ray findings were verified, in that the omentum and transverse colon were adherent to the cecum. The adhesions were severed and given the necessary treatment. Post-operatively, prostigmine provided for proper bowel activity and hydrochloric acid and pepsin were administered. The abdominal distention disappeared, the blood sugar rose to a normal figure, and the hypochondriac was converted into a contented fellow.

Two other cases occurred in women in the menopause who were in a good or too good state of nutrition.

The first of the two suffered from pruritus vulvae which came and went and was kept within tolerable bounds for a long time with the aid of salves. No sugar was found in the urine at any time. One day the eczematous process began to spread in the form of spotty reddening and swelling from the vulva over the inner and outer expanse of the upper thighs, over the anal region and buttocks as well as over the lower abdomen. Later the pruritic reddening and swelling extended over the whole body, accompanied by edema of the eyelids to a degree which prevented the patient from seeing. Injections of calcium and adrenalin were to no avail. Inquiry revealed that the patient for a long time had been taking a follicular hormone for the vulvitis. The dosage of this hormone was then increased but without effect. A dermatologist, who was called in consultation, prescribed salves which made the condition more tolerable but did not cure it. Occasionally morphine had to be employed. Repeated urinalyses were negative until one day traces of sugar appeared, which gave a clue to the diagnosis and cure. Her blood sugar was high. A dose of insulin produced instantaneous improvement. Her diet was then regulated and she was given small doses of insulin which later were replaced with sulphur, which is a necessary constituent of the insulin molecule and has a special affinity for the skin.

This case served as an object lession for the following one. Again it was a case of hypernutrition in a woman at the menopause. She suffered from anal fissures which, notwithstanding all treatment, refused to disappear entirely, and also proctitis. The condition was traced to a tendency to constipation. In the course of an automobile trip to Florida an eczema of the vulva and anus developed which gradually spread to the inner area of the upper thigh and upward until the whole surface of the body became red and swollen. The eyes closed because of the edema of the lids. In this condition she returned from a trip. On account of the pruritus there were numerous partly infected scratch marks.

The former case served as a guide to diagnosis and treatment. There was no sugar in the urine, but the percentage of blood sugar was high. Correcting the diet, giving insulin at first and later sulphur led to a definitive cure not merely of the acute cutaneous symptoms and vulvitis but also of the obstinate anal fissures.

The four cases herein described seem to have this in common: the chemical equilibrium of the body humors was disturbed. In the gynecological cases there was a hyperglycemia though without sugar in the urine. The patients reacted promptly when the chemical balance was restored by means of small doses of insulin. The patients remained healthy upon correction of their diet and after the defective pancreatic gland had been supplied with sufficient quantities of proper structural material in the form of sulphur.

In the first surgical case with edema of the tongue, migraine-like headaches, edema of the glottis and urticaria, there was a low calcium content of the blood. The cause of the disturbed balance was evidently the over-indulgence in fruit to which the patient had reacted quite suddenly. The acute deficiency of calcium caused too great a strain on the activity of the parathyroid glands, which led to the allergic eruptions, which likewise disappeared as soon as the chemical balance was restored and stayed away permanently when proper nourishment forestalled overtaxing of the parathyroid glands.

In the second surgical case there was a stagnation of fecal material in the ascending colon with reabsorption of products of digestion which had not been fully split up. This had led to the neurasthenic symptoms, to the lack of hydrochloric acid in the stomach juice and to anemia. Attempts to regulate the stool with purgatives and enemas had brought about only a mild and passing improvement. Once the intestinal passage had been opened following the operative severance of the adhesions, all these symptoms disappeared and the hypochondriac became a new and happy man.

Most people suffer from these mild metabolic disturbances without pathological symptoms. In the cases here presented there must have been present some organic inferiority, or shall I say an allergic condition of certain organs so that

they were unable to overcome this inferiority. An analysis of these cases, it seems to me, supports the theory of an inferiority of organs or tissues in the sense of Adler or of the *morbus asthenicus* of Stiller. The possibility of such inferiorities is borne out by the experiments of T. H. Morgan and Charles R. Stockard. Their experiments indicate an inferiority in many ova as well as a measure of susceptibility of the embryos to extrinsic influences which cause them to develop abnormally.

The theory of hereditary organic inferiority got its start with the study of the kidneys. Many pathologic conditions in the kidney, such as genuine cirrhosis or cystic degeneration, cannot be explained except on the assumption of such hereditary inferiority. Then, too, the assumption of such organic inferiority is supported by the circumstance that the kidneys, which are the chief excretory organs of the body, are particularly exposed to bacteria, toxins and poisonous metabolic products and fall a prey to disease in some cases, while in others they do not.

Also, infectious diseases, such as tuberculosis and diphtheria, apparently require a measure of predisposition in certain organs before they become pathological. This inferiority, especially if it is only functional and not morphologically noticeable, may be so slight that only a supernormal demand on the inferior organs reveals its existence. Thus in the aforesaid gynecological cases there was plainly a depressed functioning of the pancreas present. It became evident in the first case when the patient lost her husband to whom she was deeply attached and had to take over the sole management of his vast business. In the other case, a long automobile trip together with a change of diet and climate caused the depressed functioning of the pancreas with the result that the inferiority of the organ became evident. In this case there was an hereditary penchant to obesity as well as to liver and stomach troubles. The patient with the chronic stenosis of the bowels labored under the fear of cancer or ileus so that the metabolic disturbance tending toward costiveness could not be compensated. The condition led to all sorts of nervous disorders which disappeared with the return to normalcy.

It is the writer's opinion that allergic conditions also come under the heading of organic or tissue inferiority. Allergy means a difference in reaction to stimuli in certain individuals, whereas the same stimuli in others would produce no reaction. With an urticarial rash appearing in three patients herein referred to, we must take for granted that the connective tissue refused to function. According to Schade, connective tissue is interposed between capillaries and tissue cells everywhere in the body, serving as a colloidal filter, so that there arises the threefold system of capillaries, connective tissue and organ cell. Whatever passes from the capillaries to the cells or from the cells back to the blood must pass through this filter. This filter serves to keep the acid-base equilibrium, and when that balance is considerably disturbed edema is bound to occur, followed by urticarial eruptions, as in three of the cases described. Furthermore, metabolic disturbances are sure to leave a residue of waste material on the connective tissue until it eventually refuses to function. Higher degrees of this condition manifest themselves as edemas and inflammation. From all of which it appears that a measure of attention should be paid to blood chemistry before resorting to operation or other drastic treatment.

6633 Sheridan Road.

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IMPOTENCE AND ITS MEDICAL TREATMENT

Leon M. Beilin, M. D.
CHICAGO

The clinical study of sexual impotence in men should not be confined to any one school of medical specialization; it is of vital interest and importance to all physicians.

I shall not, in this essay, dwell upon the physiological aspects or the mechanism of the sexual act—which are not, as yet, sufficiently understood. I shall merely stress that sexual potency depends upon four component factors,

namely: libido, erection, ejaculation and orgasm. These factors, however, are not equally concerned in the causation of impotency.

The successful consummation of the sex act on the part of human male depends upon an effective erection. This is the basis—the *sine qua non*—of male potency. Without it, the sex act is impossible. The remaining factors are not necessary for the satisfaction of a man's female sex-partner.

I now propose to briefly review several varieties of impotency:

Organic Impotence: In this classification are those cases of various congenital and acquired malformations and deformities of the male sex organs, for instance, such as the so-called "plastic induration of the penis" (induratio penis plastica). Etiology furnishes us with very little knowledge of this condition. It is described by Keyes as a "circumscribed fibrosis of the sheath of the corpora cavernosa." A clinical characteristic of this condition is the formation of a painless lump in the dorsum of the penis which, on erection, causes a curvature that interferes with the act of coitus. The pathologic-anatomical changes of this condition are similar to those of Dupuytren's contraction. Indeed, both diseases are often coexistent. This condition may be confirmed by x-ray evidence.

Other physical impediments to a successful coitus may arise from advanced arthritis of the spine or hips, preventing their flexion, from underdevelopment of the penis, acquired deformities of the penis (scars, etc.), hypospadias or epispadias or from marked enlargement of the scrotal contents, as hernias, hydroceles, tumors, etc.

The majority of urologists today, at least in the United States, consider that male impotency is a manifestation of some organic derangement in the sexual apparatus that is either inflammatory or degenerative in character.

McDonagh says:[1] "There can be no doubt that there is a lesion somewhere which we are not advanced enough to detect, but the fact that it is hidden does not warrant us to assume that there is nothing wrong."

Walbarst, in a recent urethroscopic study of 300 cases of impotence,[2] reports that 44% of the patients gave a history of gonorrheal infection—generally involving adnexa-; and that 83% of these had some demonstrable pathologic lesion in the urogenital tract.

It may seem incredible that a slight lesion, or hyperemia, in the deep urethra is capable of causing so intense an irritation as to produce all the somatic and mental disturbances that are often displayed by sexual neurasthenics. But, as Huhner has aptly remarked: "Some insignificant lesion detected through the examining cystoscope may be the very cause of most profound reflex symptoms."

I recently treated two cases of chronic refrectory headaches[3] which had resisted all methods of local and general therapy. Yet they yielded to the treatment of incidental genital lesions, namely: in one case a small papilloma of verumontanum; and in the other case some granulations at the base of collicullus seminalis.

Huhner further states:[4] "As a result of these apparently insignificant lesions, the cerebrospinal sexual center is being constantly bombarded with impulses from these parts, with the resultant irritability and complete exhaustion of the center."

Generally speaking, however, pathologic findings do not necessarily imply clinical phenomena, as organic criteria may exist without causing any symptoms of sexual impairment. There is a certain neurasthenic type of patient who, with slight pathological findings, is very different from the average patient in a similar condition. If one's vision is narrowed only to the physical aspect of the patient, and his or her mental and emotional aspects are ignored, one falls short of the desired therapeutic results. It is essential that the entire individual, with the whole of his physical, mental and emotional equipment, be dealt with, not merely his sexual organs.

Impotence in Internal Diseases: Clinicians are aware that there are many constitutional disorders that are accompanied by varying forms and degrees of a disturbance of the sexual functions. Sexual aberrations are especially prone to occur in diabetes and glycosuria. Indeed, there are not a few cases in which impotence is the first symptom of these diseases. For instance: a cursory observation that a middle-aged patient who eats and drinks a great deal, loses no weight, but who complains of sexual weakness and loss of libido, should place one on guard—even in the absence of positive urinary findings

for sugar reduction. Furbringer has stated[5] that about one-half of his patients troubled with diabetes complained of impotentia.

Another condition often accompanied by a disturbance of sexual functioning is obesity. There seems to be a parallelism between an increase in bodily weight and a decrease of sexual virility. The pathogenesis of this phenomenon is not quite clear. That it depends upon a disturbance of internal secretion has been suggested, but the suggestion remains unproven. Another hypothesis ascribes this phenomenon to the development of a fatty degeneration of the testes, analogous to a similar change in the heart. However, it should be noted that the opposite phenomenon, i. e., a loss of bodily weight, is not generally accompanied by a corresponding increase of sexual potency. Excessive loss of weight in chronic diseases, cachexia, anemia, etc. is usually accompanied by a diminution of general bodily tonus and sexual vigor. Impotent cachectics, as a rule, are not greatly perturbed by their sexual weakness. The tubercular patient, however, is an exception; he often exhibits an increased libido and potency, even in the advanced stages of the disease.

Other conditions that may preclude normal sexual activity are dyspnea, edema and uremic manifestations of Bright's disease, arteriosclerosis, etc.

Impotence in Organic Nervous Diseases. Many organic nervous diseases are associated with a disturbance of the sexual function. In tabes dorsalis, for instance, loss of potency may be one of the earliest symptoms. The extent of the loss of potentia in the tabes has not yet been definitely established. At the genesis of this condition there is usually present some lessening of the libido and the orgasm along with premature ejaculations. However, in some patients at this stage a paradoxical increase of libido has been observed. Men, who until this time, were apparently normal sexually began to indulge in various sexual excesses, engaged in numerous amorous affairs, divorced and remarried, and, in general, evidenced a sexual vigor which had not been usual with them. This extraordinary behavior is usually due to a local irritation of the posterior nerve roots of the spinal cord that supply the sexual organs. When this stage subsides it is, as a rule, followed by total impotency.

There are other organic nervous diseases that appear to be responsible for disturbances of potency, but, as yet, they are not sufficiently understood. In hemiplegia, for instance, an alternating increase and decrease of potentia—with a maintenance of normal libido—has often been observed.

Impotency in Chronic Intoxication. Certain drugs, when used to excess, are known to affect sexual potency. Camphor, belladonna, arsenic and convallaria, for instance, are sexual depressants. Charcot cites two cases of psoriasis which, as the result of prolonged treatment with arsenic, developed a partial impotency which disappeared upon cessation of the treatment.

Alcohol, morphine, cocaine and nicotine are definitely anaphrodisiacs. When used to excess they diminish sexual potency. It is interesting to note that at the beginning of these drug addictions there often occurs an acceleration of sex sensation and potency. But a prolonged and excessive use of these drugs is invariably accompanied by a complete cessation of sexual functioning. Chronic alcoholism primarily results in delayed ejaculations. Any individual variation in the depressive action of whisky, wine or beer upon sexual functioning has not yet been clearly proven.

The excessive use of nicotine undoubtedly contributes to the development of impotency. This has been demonstrated by numerous experiments upon lower animals. Havelock Ellis states that the snuffing of tobacco is especially harmful because it either diminishes, or totally destroys, that normal olfactory sense which plays so important a role in sex stimulation.

Impotency in Psychoneurosis. In the searchlight of psychiatry, impotency appears as a purely psychogenic phenomenon—as a functional neurosis that does not depend upon any type of organic disease. It is regarded as a manifestation of general neurasthenia—as constituting one of the classes of disease termed "fatigue neurosis."

Kraft-Ebing considers impotency as a true neurosis that is independent of any form of visceral disease—merely as an outgrowth of inherent neuropathy.

Stekel holds that in a man with normally developed genetalia there is no such condition as organic impotence.

Freud attributes impotency to a disturbance in the individual's phycho-sexual life, the origin of which may be traced back to infantile fixations. He contends that the leading role in the development of a sexual neurosis is played by an early mother fixation (the "mother image" that is impressed upon the plastic and "unconscious mind" of the infant). Normally, this so-called "Oedipus complex" fades away. But, in many cases, this "mother image" becomes so indelibly "fixed" in the unconscious mind that every attempt at coitus in frustrated and ungratified because of the "unconscious" identification of the "love image" of childhood with the wife. Under such a psychologic condition a successful sexual relationship is impossible and often repulsive.

Physicians who specialize in the treatment of male sex aberrations are cognizant of the profound depression which many of their patients suffer, of their prolonged melancholic contemplations of their inability to enjoy the normal and natural joie de vivre. Many patients, thus afflicted, refuse, or are unable, to think of hardly anything but their sexual inability. They become hypochondriacs. They tend to develop inferiority complexes which they invariably project to the sexual region. From a clinical viewpoint they present very bizarre symptoms, heavily oppressed with a sense of distorted sexuality, and are stampeded emotionally with a fear of "loss of manhood."

It should be borne in mind that sexual capacity is primarily an individual matter. Even within normal limits it varies considerably. The physician cannot arbitrarily determine what it is that constitutes a pathologic departure from sex normality.

Freud says, apropos this point:[6] "In this we have to give due weight to the influence of quantitative factors and the cooperation of a number of pathogenic influences and, above all, we have to assign a great role to the so-called constitutional disposition of the individual." In other words, we must discover the patient's "sexual coefficient."

Empirically, impotence should be considered pathogenic only when it occurs in a state of adequate and sufficient sexual stimulation.

For instance: a groom may be impotent towards his young and virtuous bride, yet be fully gratified with the embrace of a puella publica. Now, this type of man should not be regarded as a sufferer from *organic* impotence. He is really suffering from a *psychic* inhibition. I know of a man who was impotent with his wife, but he was perfectly compos copulationis with a "lady friend" who had falsely assured him that she had undergone surgical sterilization. In this case, the presence of a laporatomy scar acted as an adequate sexual stimulant.

Paralytic Impotency. This condition may be due to either a partial, or a complete, exhaustion of the cerebrospinal sexual center, with a subsequent loss of erectio and libido. It may follow excessus veneris as well as prolonged continence. In the case of prolonged continence, paralytic impotency is especially prone to occur in men who are obese, or of sedentary habits, with oft-repeated ungratified sexual desires and unrelieved erotic fancies—in short, in men who are constantly in a state of eroticism (irritatio frustrana), or, as Morrow calls it, "mental masturbation."

Whilst in military service in the Orient, I observed that some army officers, owing to the absence of desirable female sex partners, practiced continence. At first, they tolerated this with considerable difficulty. Later on they apparently made an adjustment through "sublimating" their sexual urge by dreaming of their home and family with the resolve that, upon their return, they would make up for lost opportunities and "go to town." But, alas! to their chagrin and amazement, they found themselves sexually inadequate to the dreamed-of occasion. Only with the elapse of some time and with considerable effort were they able to regain their normal potency.

Neurasthenics, as a rule, do not relish normal coitus. Whereas, in a normal man sexual intercourse induces no disturbance—to the contrary, after its completion he usually feels like a "gallus qui cantat." But in the neurasthenic, after coitus, physical and psychic reactions of varying intensity and duration often supervene.

The dominant complaint of sexual neurasthenics is that of premature ejaculations. This is frequently accompanied by lamentations on the part of the wife of a growing frigidity of her husband. In the opinion of psychoanalysts this

is due to a lessened libido or to a dissatisfaction with the coitus and "unconscious" attempts on the part of the husband to get through with the act as quickly as possible. In other words, neurasthenics seek refuge from sexual conflict, buried in the "unconscious," through psychic impotence and frigidity. Such patients are apt to indulge in various forms of sex perversion in order to stimulate their jaded sexual appetites.

The common practice of *coitus interruptus* as a cause of impotence has been greatly exaggerated by the medical profession. The harm that results from "unnatural" modes of coitus is functional, rather than organic, in character. They have been practiced by many couples for years without any apparent signs of harm. But, in the case of the neuropathic, such practices, when long continued, may indicate some disturbance of normal sex functioning.

Masturbation and Impotence. Medical opinions regarding the relation of masturbation to impotence are far from being unanimous. The old-time views of Tissot and his school regarding the ill effects of onanism from the loss of semen (i. e., "the loss of one ounce of semen is more injurious than that of forty ounces of blood"), have been generally discarded by medical authorities. If this were true, the fate of mankind would be doomed to perdition through such universal practices, confined as they are not only to the homo sapiens, but also to lower species of animals.

Stekel whimsically asserts[7] that the alleged harm of masturbation exists only in the phantasies of certain medical men, and that the injurious effects of the habit are the artificial creations of the physician. Stekel remarks: "The nervous effects of masturbation occur only after the person stops the masturbation."

Freud states, in regard to the practice of masturbation, that "in many instances the loss of potency is merely apparent."

In the opinion of other medical authorities, however—with which I entirely agree—it is impossible to exclude from the consequences of masturbation a permanent diminution of sexual potency.

Senile or Physiologic Impotency. With all men, with some earlier than others, senile impotency eventually ensues. Normally, in the ageing man, sexual potency subsides gradually with a simultaneous decrease of libido and erectibility. This physiologic fade-out of sexuality in man, corresponding to the menopause in woman, normally does not cause any particular distress or unhappiness. It becomes disturbing only in the event the erective power is lost whilst the libido remains intact. In the civilized man, it is usual that the sexual power begins to diminish around the fifties and is extinguished when the man reaches the age of sixty-five. There are, however, enormous individual differences, and not years alone but the entire condition and the make-up of the individual are of prime importance. Frequently we see comparatively young men exhibiting signs of senility while even very old ones may be quite vigorous in every respect. Vita sexualis, in my observation, is extinguished earliest in those who were never very virile and disappears latest in ones who were not overzealous in husbanding their sexual power, without committing real excesses.

Therapy of Impotency. The treatment of impotency is hampered by a plethora of opinions that too often are not based upon a proper evaluation, or a clinical knowledge, of the factors involved in the causation of this condition.

Where there are physical or mechanical impediments to the act of coitus, obviously the treatment should be surgical. For instance, in cases of a plastic induration of the penis, or of hypo-or-epispadias, surgery may be of benefit. Recently Lowsley and Bray[8] devised an operation with the object of curing impotency. This operation produces a compression of the dorsal veins of the penis by tightening the two leaves of the suspensory ligament of the organ, thereby causing venous stasis. Whilst these authors report successful results in many cases, they state that sufficient time has not yet elapsed to demonstrate the ultimate value of this operation.

When definite pathologic findings in the posterior urethra, or its adnexa, are present, effective local treatment is indicated.

The treatment of posterior urethra through a urethro-cystoscope should be undertaken only with an ample knowledge of the anatomy and pathology of the parts involved coupled with the exercise of a proper technique. The prime prerequisite of all intraurethral manipulations and

medications is extreme carefulness and gentleness.

In the successful treatment of genital pathology the first essential is the removal of congestion, which is always present. Just as the laryngologist advises rest for inflamed and congested vocal cords, so the urologist advises rest for congested urethra and genital adnexa. After the congestion subsides, a mild stimulation is indicated.

I do not employ cauterization or fulguration of verumontanum routinely because this may aggravate the existing symptoms and tends to produce a "therapeutic impotence." In my practice I have found that the use of the sinusoidal-faradic currents is the most effective method to stimulate posterior urethra and the prostate.

Prostatic massage, hydrotherapy and diathermy, properly applied may in some cases, prove very beneficial, if only for their psychological effects.

When impotence is associated with some internal disturbance, such as diabetes, obesity, Bright's disease, arteriosclerosis, tabes, etc., the treatment of the underlying condition is indicated.

When impotence is merely a manifestation of general neurasthenia, then treatment for neurasthenia is essential. Empirically, in these cases, the more active and marked the symptoms of neurasthenic disturbance, the more sensitive the patient is, the more gentle and painless the treatment should be. A sympathetic attitude on the part of the physician tends to calm the disturbed psyche of such a patient by assuring him of improvement and of an ultimate cure. But an unsympathetic, imperious, or indifferent tone towards a neurasthenic patient is very likely to aggravate his symptom-complex. Even after the first consultation, when it has been made clear to the patient that the psychic mechanism is responsible for his sexual disturbance, a definite improvement often results.

In some cases of impotence, excellent results have been obtained by hypnosis. Hypnosis, however, should be tried only by an expert in this form of therapy.

The Treatment of Sexual Impotency by the Psycho-analytic Methods of Freud. The efficiency of these methods still remains within the domain of individual opinion and experience. The successful treatment of long-standing and recalcitrant cases of impotency by the psychoanalytic technique is, of course, well known, whilst, on the other hand, cases of failure are frequently reported. This method, with its merciless inquisitorial probing into the innermost recesses of a patient's psyche, appears to many physicians as being too over-inclusive. The constant emphasis by some psychoanalysts that impotence in the man, and frigidity in the woman, are determined solely by unconscious emotional conflicts and, therefore, must be treated by the psychoanalytic technique alone, is strongly opposed by the urologist.

But, I understand that even Freud, the founder of psychoanalysis, does not treat a case of impotency by his technique until his patient has been examined by a competent urologist in order to exclude any possible pathology in the patient.

Endocrine Therapy and Impotency. Recent progress in the field of endocrinology has opened up new vistas in the sex hormone therapy of impotency. The amazing advances made in this field, during the past few years, have evoked much enthusiasm and optimism in many quarters. Sex hormone therapy, in general, is now based upon fairly exact biologic and chemical knowledge. However, so far as the effect of organotherapy on the aberrations of sexual functions and behavior is concerned, authenticated clinical evidence is still lacking. Endocrine therapy, as yet, offers more promise than proof of adequacy. Until more definite evidence is forthcoming scientific minded physicians will suspend their judgment.

Pharmaceutic Preparations for the Treatment of Impotency. Of the drugs in vogue for the treatment of impotency, yohimbine, damiana and muiracithin are the most effective. Yohimbine stimulates erection but its use is not free of danger. It often produces the symptoms of intoxication, even in doses so small as 0.005 to 0.01, manifested by general irritability, precordial pain, pressure in the head, engorgement of the testes, general weakness, nausea, salivation, lacrymation, etc. The action of damiana and muiracithin is usually weaker than that of yohimbine. Sometimes these drugs are used in

combination with arsenic, strychnine and papaverine.

Other drugs with aphrodisiac action are camphor, cantharides, lupuline and cocaine. These, I believe, were employed more frequently in the past than in the present.

For premature ejaculations, prejaculine, a combination of atropin, calcium and lecithine, has been recommended. For the anesthetising of the glans penis, as its hyperesthesia may contribute to impotency, an ointment containing 2% of stovaine or nuprecaine may be used.

For general sedation, bromides are beneficial.

Of many organo-extracts, there are offered to the medical profession today: testogan, testasan, testicoids, lydine, androstine, androsterol, anandril, neosex, and many other similar preparations.

Much in vogue in France at present is istaline, which is a compoound of yohimbine, testicular extract, strychnine and aloes. Hirshfield, Furbringer and Shapiro recommend testifortan and claim successes in cases of partial impotency.

In the treatment of senile impotency, general hygienic, hydrotherapeutic and dietetic measures may prove beneficial.

Mechanical contrivances (splints, etc.) for supporting a flabby phallus, vacuum pumps, etc., are recommended by commercial interests, but are unsound physiologically.

The transplantation of gonads (Voronoff's method) and Steinach's operation for rejuvenation are not accepted by most of the workers in this field.

Blood transfusions from young and healthy donors has been reported as greatly beneficial for sexual invigoration.

185 North Wabash Avenue.

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Book Reviews

PERSONAL HYGIENE. By C. E. Turner. Dr. P. H. with eighty-four text illustrations and three colored plates. St. Louis. The C. V. Mosby Company. 1937. Price $2.50.

This book presents the present day knowledge of personal health within available time and space limitations and with enough anatomy, physiology, and other underlying sciences to clarify and support the health teaching.

THE COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION. Edited by Richard M. Hewitt, B.A., M.A., M.D., Lloyd G. Potter and A. B. Nevling, M.D. Volume XXVII (Papers of 1936—Published 1937). Octavo of 1331 pages with 212 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $12.00 net.

The aim in selecting material for this volume was, as it has been in compiling previous volumes of the series, to assemble a work which would be useful primarily to the general practitioner, diagnostician and general surgeon.

THE LARYNX AND ITS DISEASES: By Chevalier Jackson, M.D., Sc.D., LL.D., F.A.C.S., Professor of Bronchoscopy and Esophagoscopy, Temple University, Philadelphia and Chevalier L. Jackson, A.B., M.D., M.Sc. (Med.), F.A.C.S., Professor of Clinical Bronchoscopy and Esophagoscopy, Temple University, Philadelphia. 555 pages with 221 illustrations, including 11 plates in color. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $8.00 net.

In this work no attempt has been made to present the ideas of others. The reader can be assured that everything in this work has been tested in the crucible of clinical experience. Up to the present time there seems to be, in this country, no text book devoted exclusively to the larynx and its diseases. This work brings the subject strictly up-to-date, and written by a Master of the treatment of the diseases of the Larynx.

CLINICAL REVIEWS OF THE PITTSBURGH DIAGNOSTIC CLINIC. GUIDEPOSTS BTO MEDICAL DIAGNOSIS AND TREATMENT. Edited by H. M. Margolis, M.D. New York. Paul B. Hoeber, Inc. 1937. Price, $5.50.

In presenting this book the author kept in mind the requirements of the general practitioner, the intention being to present a summary, critically analyzed, of what the authors regard as accepted present day medical concepts. In adhering to the ideal of simplicity and practicability, research details have been eliminated, and controversial matters avoided as much as possible.

SURGICAL TREATMENT: By James Peter Warbasse, M.D., F.A.C.S., Special Lecturer in the Long Island Medical College; Formerly Attending Surgeon to the Methodist Episcopal and the Wyckoff Heights Hospitals, Brooklyn, N. Y., and Calvin Mason Smyth, Jr., B.S., M.D., F.A.C.S., Assistant Professor of Surgery in the University of Pennsylvania, Graduate

School of Medicine; Surgeon-in-chief to the Methodist Episcopal Hospital, Phila., Pa.; Visiting Surgeon to the Abington Memorial Hospital, Abington, Pa. Second Edition, Thoroughly Revised and Reset. 3 Volumes with Separate Index. 2617 pages with 2486 illustrations on 2237 figures, some in colors. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $35.00 set.

In this edition there has been no significant departure from the general plan of the original work of the senior author. Every section has, however, been thoroughly revised, many enlarged and completely rewritten.

The section on blood transfusion has been changed to conform to present day practice.

The many advances on the management of the syphilitic patient have been covered in a new section. This work is the last word on surgical treatment.

Hemophilia. Clinical and Genetic Aspects. By Carroll Lafleur Birch, M.D. Urban, University of Illinois Press. 1937. Price $2.00 paper bound, $2.50 Cloth Bound.

This monograph is not a review of the subject of Hemophilia nor its literature. The data herewith reported were collected by the writer during a period of approximately nine years at the Research and Educational Hospital of the University of Illinois in Chicago. The greater part of the material was obtained from the patients and their families.

Maternal Care. Approved by the American Committee on Maternal Welfare, Inc. F. L. Adair, Editor. Chicago, Illinois. University of Chicago Press. Price, $1.00.

Memoranda of Toxicology. By Max Trumper, Ph.D. Third Edition. Philadelphia. P. Blakiston's Son and Company. 1937. Price, $2.00.

In this edition there has been added nearly one hundred pages, many news substances of interest to the toxicologist have been included. The work specially points outs the results of American Research.

This edition includes newly developed views on antidotes and methods of treatment which have resulted from expensive study in toxicology, physiology and physical chemistry.

Why We Do It? By Edwars C. Mason, M.D. St. Louis. The C. V. Mosby Company. 1937. Price, $1.50.

This work is an elimentary discussion of human conduct and related physiology. In "Why We Do It" the author states, "The absolute goal of all human beings is so satisfactorily meet their environment. The means employed and the end gained in achieving such satisfaction vary with each individual.

In this work the author has presented a convincing argument which supports the contention that the child is both egocentric and narcisstic and necessarily considers itself to be the center of the universe.

The Technique of Local Anesthesia. By Arthur Hartzler, M.D. Sixth Edition. St. Louis. The C. V. Mosby Company. 1937. Price, $5.00.

This edition has been revised in part, simplified here and there, and some material has been added. The fact that it has gone through six editions in rapid succession speaks volumes in its favor and shows an enormous demand in this up-to-date work.

CAUSE OF JOINT PAIN OCCURRING DURING ACTIVE IMMUNIZATION WITH SCARLET FEVER STREPTOCOCCUS TOXIN

In an effort to determine whether the joint pains occur as a direct result of the action of streptococcus toxin on the joint tissue or because the involved joint tissue has at some time become sensitized to the protein contained in the toxin solution and in the latter case whether the protein resulted from the growth of the streptococcus or is present in the broth used for production of the toxin, Clair E. Healy, Chicago (*Journal A. M. A.*, Feb. 20, 1937), carried out experiments on sixty-three young adults who complained of joint pains during the course of immunization against scarlet fever. Joint pain was caused in the sixty-three adults by the subcutaneous injection of sterile filtered streptococcus toxin in broth solution, of which fifty-three gave a history of previous occurrence of joint pain or of symptoms suggestive of rheumatic infection or previous streptococcic infection. In forty-seven the joint pain produced by the injection was due to the toxin alone. In eleven toxin was the chief factor in the causation of joint pain. In five the pains were not caused by the toxin but were attributable to protein contained in the broth solution or to coincident active foci of infection in these patients. The fact that in most instances pain caused by sterile filtered streptococcus toxin in broth solution could not be reproduced when the toxin in the solution was destroyed by heating or when diluted broth was given indicates that the pain was most frequently due to toxic action and not to sensitization to protein resulting from the growth of the streptococcus or to protein present in the broth used in the production of the toxin.

CINCHOPHEN—IS THERE A SAFE METHOD OF ADMINISTRATION?

In this paper, Walter Lincoln Palmer and Paul S. Woodall, Chicago (*Journal A. M. A.*, Sept. 5, 1936), attempt to answer the question "Can cinchophen be given safely if given carefully?" The question itself implies that cinchophen is a dangerous drug. Cinchophen, phenylcinchoninic acid, seems to have been discovered in 1887 by Doebner and Gieseke and to have been introduced into medicine under the trade name of atophan in 1908 by Nicolaier and Dohrn. Since that time it has been used extensively for gout as well as for other forms of arthritis and for the relief of pain of all types. In 1932 Hench listed thirty-two drugs known to contain cinchophen or its derivatives as the active constituent and stated that he had accumulated the names of 500 remedies advertised in American drug

lists as cures for rheumatism or as uric acid solvents, many of which undoubtedly possess cinchophen as the base. It has been estimated by White that the annual consumption of cinchophen and its derivatives in the United States is about 90,000 pounds. No serious effects were noted from cinchophen until 1913, when Phillips described certain skin reactions as indicative of an idiosyncrasy to the drug. In 1922 Schroeder called further attention to its toxic effects. The first case of jaundice attributed to cinchophen was reported in 1923 by Worster-Drought and the first fatal case with jaundice two years later by Richard Cabot. In the decade that has elapsed, an increasing number have been reported. It is, of course, obvious that the vast majority of patients are able to take cinchophen over long periods of time without apparent injury. The nature of the peculiar hypersusceptibility that results in the occasional case of jaundice and death is obscure. It is the authors' purpose in this paper to review the reported cases in an effort to ascertain, if possible, what relationship exists between dosage and toxicity and whether or not cinchophen can be given safely if given cautiously. The authors show that in the past decade there have been described 191 cases of jaundice following the administration of cinchophen or its derivatives, including neocinchophen. Of these, eighty-eight ended fatally, a mortality rate of 46.3 per cent. The actual incidence of this sequence is undoubtedly much higher than the published reports would indicate. Instances have been cited in which the long continued use of cinchophen has been without apparent harm until the sudden appearance of jaundice followed by dramatic death. In some cases the administration of very small doses of the drug under careful observation with immediate withdrawal on the first evidence of toxicity has nevertheless proved fatal. It is therefore concluded that there is no safe method for the administration of cinchophen.

INCREASE IN HEIGHT AND WEIGHT AND DECREASE IN AGE OF COLLEGE FRESHMEN OVER A PERIOD OF TWENTY YEARS

In making a yearly average of the height, weight and age of 8,900 young men and 4,124 young women entering the University of Cincinnati from 1916 to 1935 Laurence B. Chenoweth, Cincinnati (*Journal A. M. A.*, Jan. 30, 1937), finds that the results show that freshmen are admitted at a younger age now than they were twenty years ago. Freshmen are taller and heavier today than they were twenty years ago, in spite of their younger age. Judging from evidence from the past, mankind in civilized countries is steadily growing taller. There is no definite answer to the question of what causes this to be true, but the probable causes of the increase in stature and weight of young people are better nutrition in infancy and childhood, less communicable disease, higher standards of living, and a higher degree of health intelligence among people in general. Undoubtedly those who have contributed most to this state of affairs have been physicians (especially pediatricians), nutritionists, public health workers and educators. Studies in the end product of the public schools (college freshmen) seem to indicate that a definite racial betterment is taking place in the United States and that the improvement is only partially influenced by social and economic position.

INITIATIVE

The World bestows its big prizes, both in money and honors, for but one thing. And that is Initiative. What is Initiative? I'll tell you: It is doing the right thing without being told. But next to doing the thing without being told is to do it when you are told once. That is to say, carry the Message to Garcia: those who can carry a message get high honors, but their pay is not always in proportion. Next, there are those who never do a thing until they are told twice; such get no honors and small pay. Next, there are those who do the right thing only when necessity kicks them from behind, and these get indifference instead of honors, and a pittance for pay. This kind spends most of its time polishing a bench with a hard-luck story. Then, still lower down in the scale than this, we have the fellow who will not do the right thing even when some one goes along to show him how and stays to see that he does it; he is always out of a job, and receives the contempt he deserves, unless he happens to have a rich Pa, in which case Destiny patiently awaits around the corner with a stuffed club. To which class do you belong?—Elbert Hubbard.

CLUB PRACTICE COMES BACK IN ENGLAND

The deplorable conditions of "club practice" in England helped to reconcile British physicians to sickness insurance, because they hoped that insurance would abolish club practice.

Now the British Medical Association is being forced to introduce an extensive system of club practice alongside insurance. The London *Lancet* (2:1471 [Dec. 19] 1936) finds that England now has fifty-three schemes of public medical service, with a membership of more than 404,000, and that the numbers have more than doubled during the last four years. These schemes have been devised to get rid of cheap contract practice. The insurance scheme abolished these for wage earners, but now the new schemes under medical association management are extending to the higher income classes. The *Lancet* questions whether this extension of the scheme will prove salutary and concludes that "the income limit of £550 proposed in the London extension scheme will, it is safe to say, swallow up the whole of most private practices."—*Jour. A. M. A.*

More than twice as many children under 15 years of age are killed by accidents as by three common communicable diseases combined—measles, scarlet fever and diphtheria—according to a report of the U. S. Public Health Service.

Mother—"Now we're ready for your castor oil. How do you prefer to take it, Jimmy?"

Jimmy—"With a fork, Ma."

MIGHTY FINE GRAVY

A dinner guest in a Virginia home was telling his host how to prepare ham that would be even better than the famous Virginia ham.

Guest: "Place the ham in a deep pan and the first day soak it in a bottle of rye whiskey and let it cook a while. The second day add a bottle of Jamaica rum and the third day a bottle of port wine and the fourth day a bottle of Bourbon."

Host (turning to the colored cook): "What do you think of that, Sam?"

Sam: "Ah, don't know 'bout de ham, but it sho' do sound like mighty fine gravy."—*Bulletin of the Medical Society of the County of Kings, December,* 1936.

SMALL CAUSE FOR COMPLAINT

A man went to his doctor, who told him he had diabetes.

"I *can't* have it," he protested. "I'm only 41 years old."

"Age has nothing to do with it," persisted the doctor. "You have diabetes."

Stunned by the news, the patient went home on a street car, muttering hysterically to himself:

"To think! I got diabetes at 41 . . . diabetes at 41 . . ."

He kept saying this over and over until a fellow passenger protested.

"What are you kicking about?" he demanded. "I got Amalgamated Railway at 68!"—*Let's Go.*

"But when men have realized that time has upset many fighting faiths, they may come to believe, even more than they believe the very foundations of their own conduct, that the ultimate good desired is better reached by free trade in ideas—that the best test of truth is the power of the thought to get itself accepted in the competition of the market, and that truth is the only ground upon which their wishes safely can be carried out."

—Justice Oliver Wendell Holmes.

Society Proceedings

KANKAKEE COUNTY

The Kankakee County Medical Society held a special meeting on Friday, May 28, at the Manteno State Hospital, with Dr. Ralph T. Hinton, Sr., as host.

The following program was presented:

"Metabolism and Intelligence," Ralph T. Hinton, Jr.

"Injection Treatment of Hemorrhoids," with demonstration of cases, Dr. D. K. Hur.

"Injection Treatment of Hernia," with demonstration of cases, Dr. J. J. Grant, Freeport, Ill.

Inspection of the new diagnostic building.

Dinner.

Moving pictures—"Collapse Lung Therapy and Pertussis."

"The Institutional Problem of Housing Nervous and Mental Patients," Hon A. L. Bowen.

"Subadequate Nutrition, Its Clinical Importance," Dr. Siegfried Maurer, Sprague Institute, Chicago.

C. A. Perrodin, Secretary.

Personals

Dr. Alban L. Mann recently completed twenty-five years as health officer of Elgin.

Dr. Pierce A. Steele has been appointed health officer of Decatur, succeeding Dr. Wilmier M. Talbert, who resigned to engage in private practice.

Dr. Donald W. Tripodi has resigned as superintendent of the Livingston County Sanatorium, Pontiac, to engage in private practice in St. Louis, it is reported.

Dr. Karl M. Beck has been appointed county physician and superintendent of the Lake County General Hospital, Waukegan, for two years beginning July 1.

Dr. Robinson Bosworth has resigned as medical director of the Rockford Municipal Tuberculosis Sanatorium, effective September 1; it is reported that he is to accept a similar position with the new St. Clair County Tuberculosis Sanatorium, East St. Louis, which is to be erected this summer.

An oil portrait of the late Dr. Henry J. Gahagan was presented to the Mercyville Sanatorium, Aurora, during memorial services in his honor May 2. Dr. Gahagan was director of the sanatorium from 1917 until his accidental death Nov. 9, 1936.

Dr. R. K. Packard addressed the members of the Whiteside County Medical Society June 24.

Dr. Edward H. Ochsner addressed the Northwest Lions Club of Chicago on the subject "State Medicine as It Affects the Public" June 22.

Dr. Geza de Takats addressed the annual meeting of the Lake Keuka Medical and Surgical Association June 24 on "Diagnosis and Treatment of Convulsive Seizures Not Due to Epilepsy."

The newly elected officers of the Chicago Urological Society are: President, C. Otis Ritch; vice-president, A. J. Wochinski, and secretary-treasurer, William J. Baker.

Dr. Paul H. Harmon of Chicago addressed a joint meeting of the faculty of the Medical School of the University of Mississippi, the staffs of the Oxford Hospitals and the Northern Mississippi Valley Medical Society at Oxford on May 21, on the subject of poliomyelitis.

Dr. Harmon also showed his moving pictures illustrating positions for convalescent treatment and surgical treatment of this disease.

The Willard Gibbs gold medal of the Chicago section of the American Chemical Society was presented, May 21, to Herbert N. McCoy, Ph. D., formerly professor of chemistry at the University of Chicago. Dr. McCoy, who is vice-president and research director of the Lindsay Light Company, received his degree of doctor of philosophy at the University of Chicago in 1898. He is known for work on radioactivity.

Dr. Haven Emerson, New York, addressed the Health Division of the Council of Social Agencies, June 15, on "The District Health Center —An Indispensable Instrument of the Civil Government of Large Cities."

Dr. Philip S. Hench, Rochester, Minn., discussed "Some Axiomatic Generalizations Useful in the Differential Diagnosis of Joint Diseases" before the Chicago Club for the Study of Arthritis, May 12.

The Chicago Urological Society was addressed by Drs. Hymen J. Burstein, Decatur, on "Double Kidney with Y-Shaped Ureter and Ureteral Calculus in an Infant." A symposium on metastatic infections of the kidney was presented by Drs. Vincent J. O'Conor, Chicago, and Homer G. Hamer, Indianapolis, and case reports by Drs. Charles M. McKenna and Edward W. White.

News Notes

—The Fox River Sanatorium, Batavia, observed its tenth anniversary, May 23, with the opening of its new $100,000 building. The new structure is two stories high and adds forty-four beds to the sanatorium, which is maintained by the Chicago Consumptive Aid Society.

—The new wing of the Moline Public Hospital was dedicated recently. The Rock Island County Medical Society held its meeting in the new building May 11, and Dr. Frederick M. F. Meixner, Peoria, spoke on "Treatment of Pneumonia."

—The Chicago Society of Internal Medicine was addressed, May 24, by Drs. Leroy H. Sloan and David Slight on "Syphilis: A Comparison of Wassermann and Kahn Reactions in a Series of 500 Positive Patients" and "Migraine," respectively. Dr. Walter Lincoln Palmer delivered the presidential address on "Graduate Education in Clinical Medicine."

—The Twenty-second Annual Session of the American College of Physicians will be held in New York City, with headquarters at the Waldorf-Astoria Hotel, April 4-8, 1938.

—Dr. James H. Means of Boston is president of the College and will have charge of the program of general scientific sessions. Dr. James Alex Miller of New York City has been appointed general chairman of the session and will be in charge of the program of clinics and demonstrations in the hospitals and medical schools and of the program of round table discussions to be conducted at headquarters.

—The Chicago State Hospital was host to the Irving Park Branch of the Chicago Medical Society, May 26. Dr. Edward F. Drombowski, managing officer, addressed the members, and papers were read by the medical staff members as follows:

"Sleep Induced by Sodium Amytal in Psychotics," by Dr. Frank S. Rankin. "Traumatic Psychoses," by Dr. H. H. Golstein. "Brain Pathology and Mental Alienation," by Dr. Barnet Lemchen.

—The annual dinner of the University of Illinois College of Medicine held at the Medinah Club, June 10, with the graduating class as guests of honor of the alumni and faculty. Speakers include Arthur C. Willard, LL.D., president of the University of Illinois, and A. L. Bowen, Chicago, director of the state department of public welfare.

—Northwestern University Medical School held its annual reunion June 2-4. A golf tournament at the Illinois Country Club opened the session, with Dr. John F. Delph as chairman. The scientific program included lectures and demonstrations. At the annual dinner Friday evening, at which the graduating students were honor guests, the principal address was delivered by Dr. Irving S. Cutter, dean of the medical school. Dr. Howard B. Carroll, class of 1925, is secretary of the medical division, Alumni Association.

—Several personal items have been added to the Dr. William Beaumont collection given to the University of Chicago in 1936. The recent gifts include Dr. Beaumont's watch, his pistol with appurtenances in a mahogany case, a framed photograph of his birthplace in Lebanon, Conn., and his Masonic emblem, inscribed and dated "Plattsburgh, 1815." A Colt pistol, belonging to his son, I. G. Beaumont, was also included. The entire collection, which is the gift of the physiologist's grandson, Ethan Allen Baumont, and his wife, of De Pere, Wis., will be on permanent display in the library of the Albert Merritt Billings Hospital of the University Clinics.

Deaths

Rufus James Coultas, Mattoon, Ill.; Bellevue Hospital Medical College, New York City, 1890; a Fellow A. M. A.; past president of Coles-Cumberland Medical Society; former delegate to annual meeting of A. M. A.; on advisory staff of State Department of Health; aged 72; died, April 27, of chronic myocarditis.

Robert Emmett Flannery, Chicago; University of Illinois College of Medicine, 1906; a Fellow A. M. A. and American College of Surgeons; associate clinical professor of Surgery, Loyola University School of Medicine; senior attending surgeon to Alexian Brothers and St. Mary of Nazareth hospitals; aged 53; died, April 20, of peptic ulcer.

Max Lyon Folk, Chicago; Chicago College of Medicine and Surgery, 1917; a Fellow A. M. A.; assistant professor of Ophthalmology in University of Illinois College of Medicine; aged 46; died, June 7, of adenocarcinoma of the stomach.

George Watson Fowler, Marengo, Ill.; College of Physicians and Surgeons of Chicago, 1891; aged 85; was found dead in his office, April 13.

Arthur G. Frey, Chicago; Northwestern University Medical School, 1911; a Fellow A. M. A. and American College of Surgeons; staff surgeon at Lutheran and Grant hospitals; aged 53; died, April 8, of coronary occlusion.

D. Watson Grear, Anna, Ill.; Missouri Medical College, St. Louis, 1890; member of Illinois State Medical Society; aged 74; died, June 5, of myocarditis.

William Walter Haven, Granite City, Ill.; Barnes Medical College, St. Louis, 1908 and 1909; aged 58; died, March 29, of cerebral hemorrhage.

James Paul Henderson, Chicago; Miami Medical College, Cincinnati, 1885; aged 73; died, May 24, of chronic myocarditis and nephritis.

Benjamin Charles Klein, Chicago; Rush Medical College, Chicago, 1936; intern at the Hospital of St. Anthony de Padua; aged 26; died, March 27, in St. Cloud, Minn., of Addison's disease, pulmonary edema and heart disease.

Albert H. Nickels, Chicago; Chicago Medical College, 1923; aged 39; died, September 27, 1936, of pulmonary tuberculosis.

Matthew Ohaver, Millersburg, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1902; aged 64; died suddenly, March 26.

John William Osborne, Champaign, Ill.; Rush Medical College, Chicago, 1902; member of the Illinois State Medical Society; aged 58; for many years on the staff of the Burnham City Hospital, where he died, March 11, of diabetes mellitus.

Arthur H. Reading, Lake Worth, Fla.; Bennett College of Electric Medicine and Surgery, Chicago, 1886, a practitioner in Chicago for many years before retirement; aged 73; died, October 1, 1936, of chronic myocarditis.

Edward August Renfer, Berwyn, Ill.; Hahnemann Medical College and Hospital, Chicago, 1905; aged 55; died, April 1, of coronary thrombosis.

Thomas Jay Robeson, Bloomington, Ill.; Northwestern University Medical School, Chicago, 1893; member of the Illinois State Medical Society; veteran of the Spanish-American War; aged 74; died, March 26.

William Charles Schulze, Chicago; Rush Medical College, Chicago, 1897; president of National College of Chiropractic; aged 66; died, September 27, 1936, at Mayo Clinic, Rochester, Minn., of hypertension.

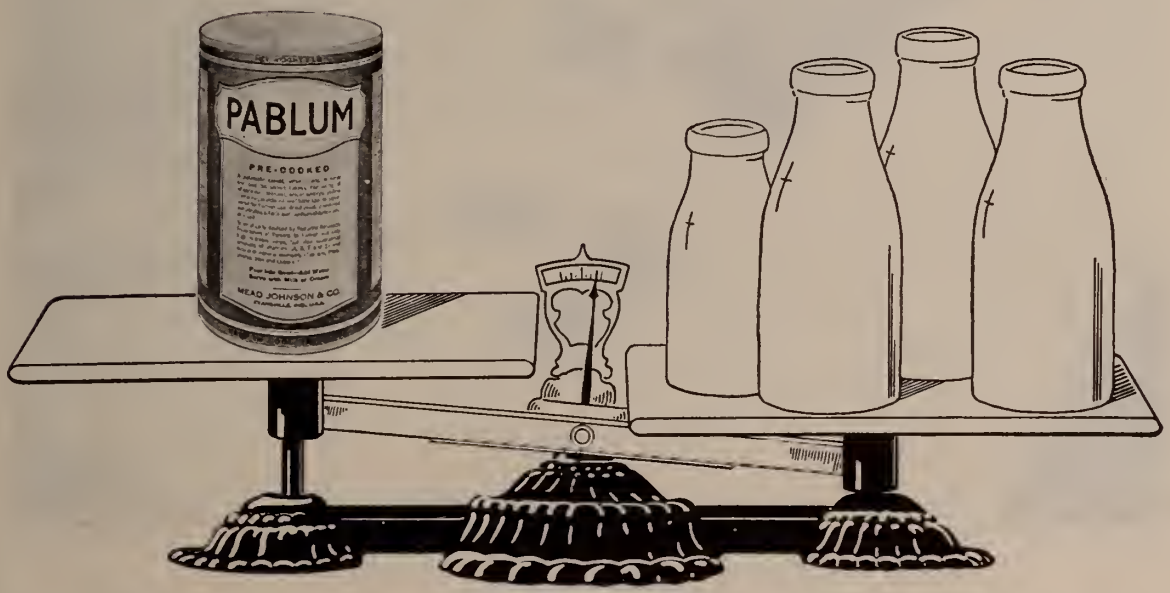
Frank E. Shipman, Chicago; University of Illinois College of Medicine, 1912; a veteran of U. S. Medical Corps in World War; aged 50; died, April 8, of cellulitis of the neck.

Walter Sidney Swan, Harrisburg, Ill.; Jefferson Medical College of Philadelphia, 1877; member of the Illinois State Medical Society; for many years a member of the board of education; aged 82; died, March 28, of cardiorenal degeneration.

Clifton K. Timmons, Chicago; Chicago College of Medicine and Surgery, 1910; former president of Illinois Masonic Hospital; aged 53; died, February 19, of angina pectoris.

William Wellford Wilson, Aurora, Ill.; University of Maryland, School of Medicine, Baltimore 1921; a member of Illinois State Medical Society; aged 43; was killed, May 27, when his automobile skidded into an abutment in Cicero.

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PHYSICAL DIAGNOSIS. By Don C. Sutton, M.D., with 298 text illustrations and 8 color plates. St. Louis. The C. V. Mosby Company, 1937. Price, $5.00.

This volume has been written to acquaint the student and the physician with the methods of examination by the use of the senses. To be concise, yet avoid the lack of details that impairs the usual outline, has been an objective in the writing of the text.

A WORKBOOK IN HEALTH FOR HIGH SCHOOL GIRLS. By Gladys B. Gogle, M.S. New York. A. S. Barnes & Company. 1937. Price, $1.00.

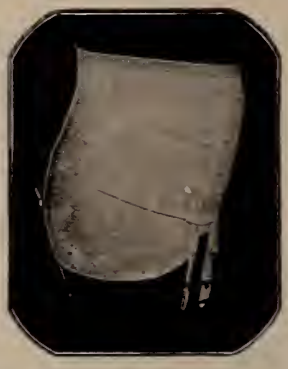
DEXTROSE THERAPY IN EVERY DAY PRACTICE. By E. Martin, Sc. D., with forewords by W. N. Haworth, F. R. S., and Bernard Fantus, M. D., with 44 illustrations, including 15 full-page plates. New York-London. Paul B. Hoeber, Inc. 1937. Price, $3.00.

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Short Wave Diathermy. By Tibor de Cholnoky. Columbia University Press. 1937. Price, $4.00.

This work should be a valuable aid to the profession proving useful as a guide to the application of short wave diathermy and that it will serve as a stimulus to the further study of short wave diathermy.

International Clinics. Edited by Louis Hamman, M.D. Vol. II. Forty-seventh series, 1937. Philadelphia. Lea & Febiger. 1937. Price, fi8.50.

pany.

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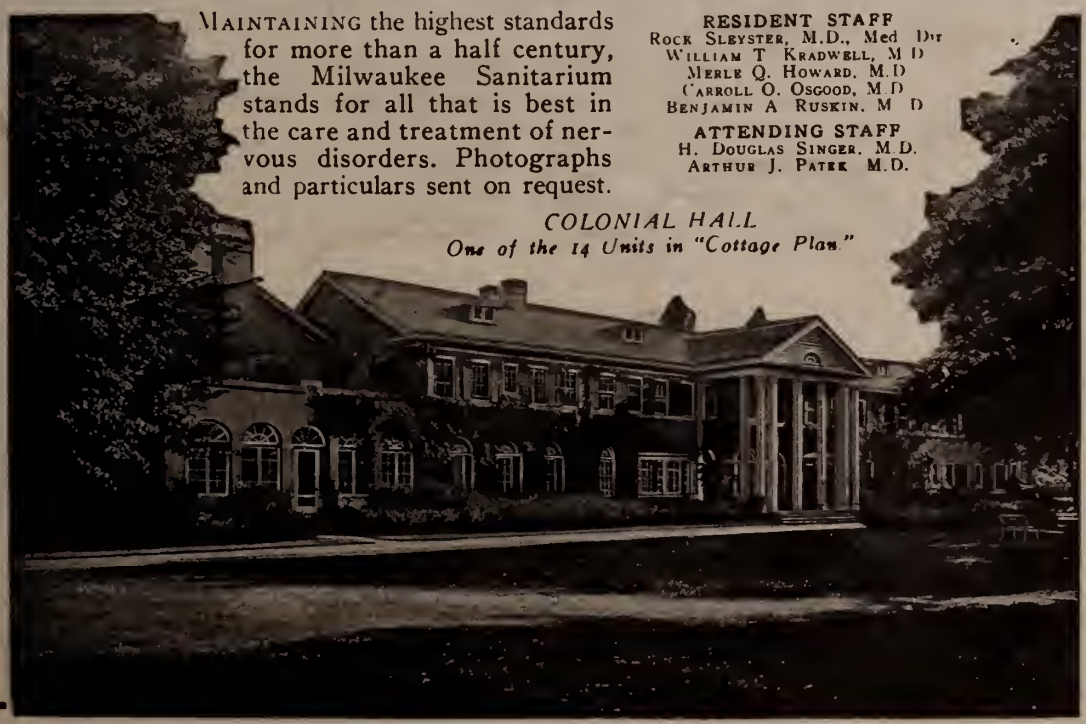
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(1) 1936, Food Research, 1, 1

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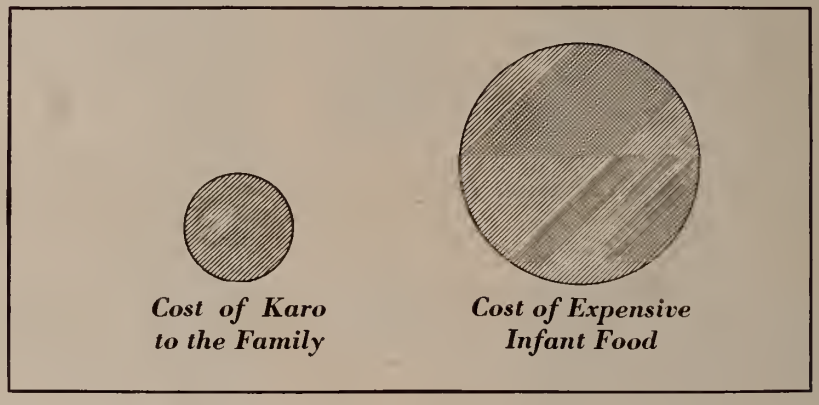
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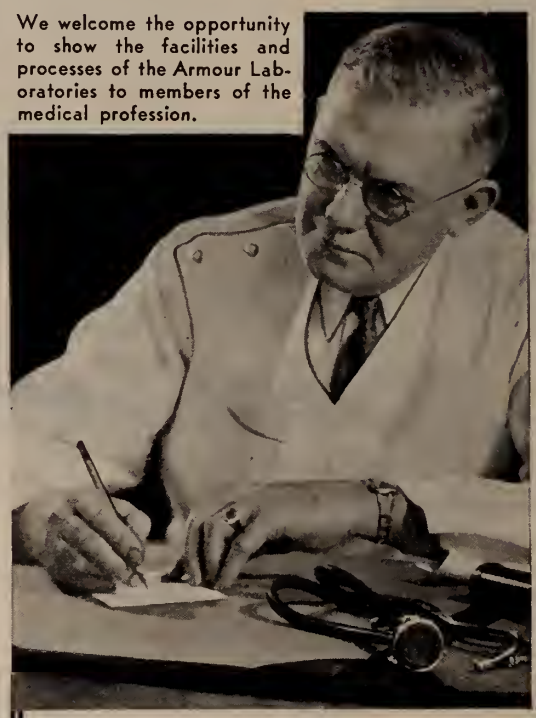
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½ cup chopped cabbage	50	1		3	
½ cup chopped celery	60	1		2	
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Total		11		19	120
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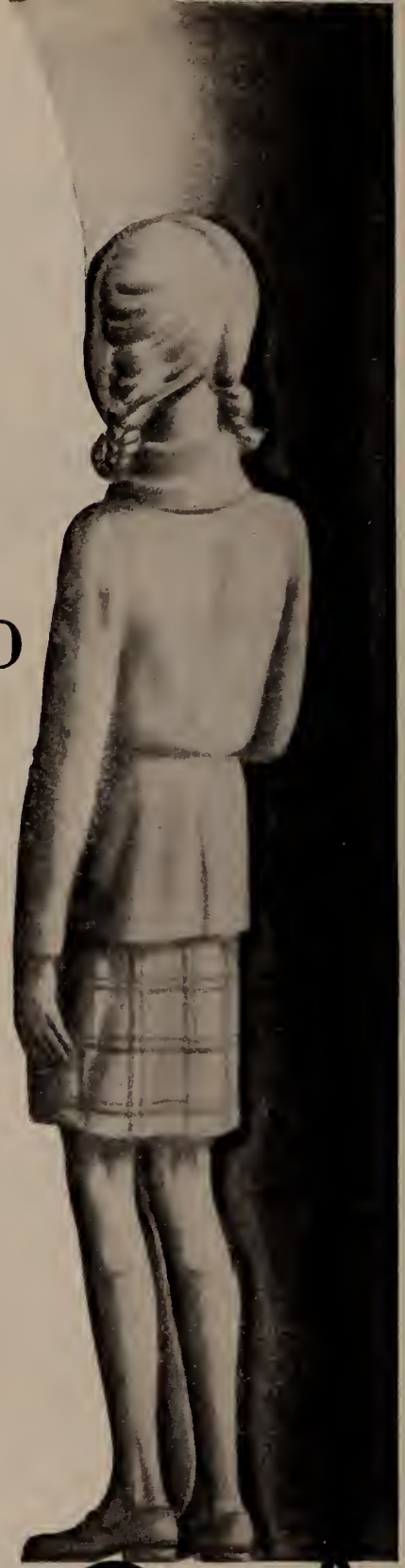


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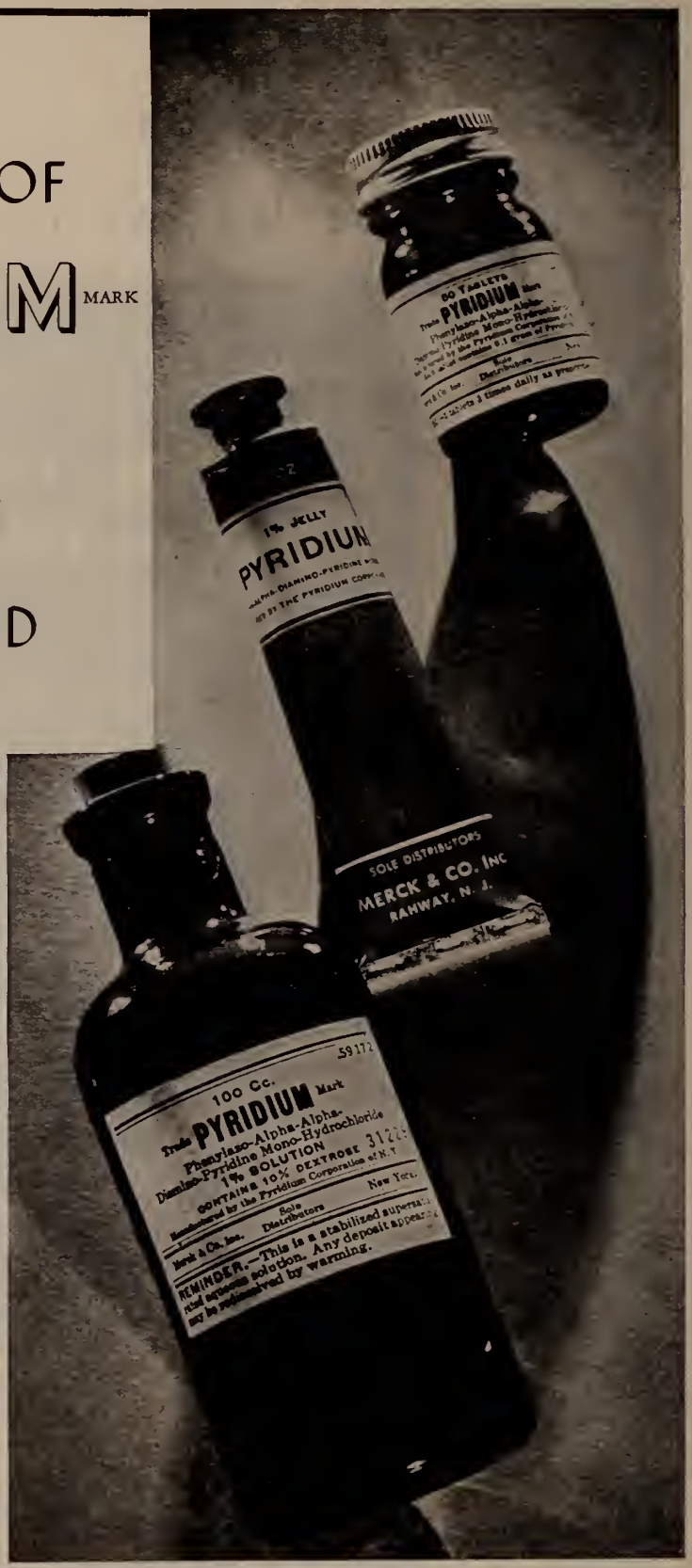
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Editorials

THE OVERWEIGHT HAZARD

Well indeed has it been said,

"The longer the belt, the shorter the life."

Reduction of overweight means a corresponding reduction in mortality statistics.

"Body girth and longevity vary in an inverse ratio."

Such is the finding of the insurance companies who feel an increase in mortality where it pinches the most—i. e., in the pocketbook.

Serious attention to the problem of overweight is one of the chief hopes of mortality reduction.

It is against the serious diseases of middle life and older age that the most progress needs to be made, and it is against these diseases that overweight must be fought militantly.

Overweight tends to shorten life. Definitely overweight is detrimental to health.

The most recent insurance study shows that men who are considered as distinctly obese, that is, men who are 35% or more above average weight have a mortality of 1½ times over that of average men.

These figures have been taken from a group of plus-standard overweights. In fact, the Metropolitan Life Insurance Company, an organization whose very life blood is manufactured from statistical findings, remarks upon this topic, in part:

"The greater the degree of overweight, the greater the mortality rate. Thus, in contrast with the approximately 60% excess mortality of the distinctly obese group with 35% overweight or more, men who are from 25 to 34% overweight have an excess mortality of 45%, and those 15 to 24% overweight, an excess mortality of 30%. Those but slightly overweight have a mortality only a little higher than those of average weight.

"Once full maturity has been reached, underweight, that is, weight below the average for a given age, is a decided advantage. With the

better understanding of the way tuberculosis spreads and with its ultimate conquest an attainable goal, that disease is much less a menace to young underweights than it was, and the mortality of underweights, relative to those of heavier builds, has improved.

"The most favorable build as regards mortality at the various adult ages in men is as follows; up to age 30, slight overweight; ages 30 to 39, average weight; ages 40 to 49, slight underweight; ages 50 and over, an appreciable degree of underweight.

"There are several types of overweights. The pot-bellied variety is the worst. The most recent insurance study shows that overweights whose abdominal girth was more than 2 inches greater than chest girth at full expansion, had an extra mortality of approximately 50%, over and above the excess mortality associated with overweight itself. Another study has shown that tall overweights with relatively long trunks and short legs did better than other tall overweights; but among medium height and short overweights, the reverse is true. Overweights with big chests showed up less favorably than those with smaller chest girths. Generally speaking, the solidly built, large-boned overweight is superior to the flabbier type.

"Certain serious physical defects are generally more common among overweights than those of slighter build. High blood pressure, for example, is over 2½ times as common among overweights as among persons of average weight. Albuminuria and glycosuria in significant amounts are nearly twice as frequent.

"The specific hazards of overweight include most of the important diseases of adult life, especially the cardiovascular-renal diseases, which are responsible for an increasing proportion of the death tool today. Thus, the death rate of overweights from heart disease and from cerebral hemorrhage is 1½ times that of average weights and nearly twice that of underweights. For angina pectoris, the difference is even larger. The mortality of overweights from this condition is more than twice that of average weights and 2½ times that of underweights. Bright's disease exacts 1¾ times as many deaths from overweights as from average weights and 2¼ times as many as from underweights.

THE U. S. SENATE BILL TO REGIMENT PHYSICIANS

Two brass buttons on the sacred staff of Aesculapius,—and the science of medicine stands betrayed by a brevet!

And all because Senator James Hamilton Lewis, Democratic Senator from Illinois, would secure the passage of a bill, introduced by him on July 28, 1937, to the United States Senate which would make all the physicians and the surgeons of the United States,

"Civil officers of the United States"

and require them to give any medical aid requested by an impoverished individual.

"O tempora, O mores!"
And, what price chocolate soldiers?

That science should live to see this day is one of civilization's greatest blots. For, as men and thinkers have long since discovered, little that is political is politic, and all that this socialization of medicine *a la Communiste et Socialiste* has to proffer by way of ancestry is the bar sinister of anarchy.

Hard words, these? Eh, perhaps. But look for a second at the history of this movement. Before its magnitude, the annual crop of politically inspired "Kentucky colonels" pales as the stars before the sun.

Even the closest friends of the administration admit in their secret hearts that regimentation is the sacred ideal of the powers that be. Though nature herself decrees shades and gradations of creation, *the administration does not,* and regimentation, standardization et al, is the revered Juggernaut before and beneath which, all true Americanism must be crushed!

Health of the country has suddenly become a paramount issue. *Hunger,* seemingly, has not. Yet it was lack of bread that sent the last of the Bourbons to the tumbril. Pre-revolutionary France never carried the load of tax-eaters borne by tax-paying martyrs, as does the United States today.

But, "back to our muttons."

This introduction of the bill to regiment physicians came as a neat postscript to the appearance of the Democratic "Whip," before the annual convention in June at Atlantic City, of the A. M. A.

As the spokesman of a "bunch of punks" when haled up before a Chicago court for cruel gang murders said fulsomely, and in substance,

"Ah, we knew we'd get this man. He was a doctor. Doctors is easy. They always goes when they thinks anybody needs 'em. Doctors believe anything."

Evidently doctors do. For when the Senator from Illinois appeared before this A. M. A. convention and spoke as we re-print below the doctors believed him. And now he comes out and says that if this proposed bill passes, and—God help medicine and humanity if it does—that,—

"The bill provides that physicians and hospitals giving service to indigent individuals would be authorized to submit bills to the social security board for payment."

The which of course means another whack at the tax-payer, of which ranks bureaucratic employes number not. Further,

"There will be penalties. Among others any doctor who refuses to give aid to an indigent person, or who submits a fraudulent or exorbitant bill to the social security boards may be subjected to a fine of $1,000 or imprisonment of not more than three months."

Who knows what is a "fraudulent" or an "exorbitant bill?" Aren't "indigent persons" already cared for by state, county or municipal hospitals?

Quoting from the *Chicago Tribune* of Thursday, July 29, 1937, their press dispatch on this topic says in part:

"In a preamble to the bill the Illinois senator set forth the grounds on which he bases his proposal for collectivized medicine.

"Pointing out that the federal government now has recognized its social responsibility to its citizens by the enactment of the social security act, Lewis declared that an extension of such responsibility is necessary to provide adequate medical care and attention for the impoverished and needy 'to assure the full enjoyment of social security.'

ASKS FOR ADVICE

"Lewis first made his suggestion in a speech before the medical association convention in Atlantic City, N. J., early in June. At that time he asked the association for advice in formulating a public health policy.

"By the assertion he had 'just talked to the President,' the senator gave at least some of his convention listeners the idea he was carrying a message from Mr. Roosevelt. Others were convinced, however, the Chicago legislator was acting entirely on his own.

"Lewis says himself he offered the bill on his own responsibility; that it was proposed by no organization or interest. He also admitted his speech in Atlantic City stirred up a great controversy and that the A. M. A. wrote a letter to Mr. Roosevelt expressing their apprehensions about the advisability of such a law.

"In Chicago, Dr. Olin West, secretary of the medical association, termed it the 'most complete regimentation of physicians that possibly could be accomplished.'

" 'From press dispatches—I haven't yet seen a copy of the bill—the Lewis measure appears opposed to every policy that the organized medical profession has stood for,' said Dr. West."

Those who heard the Senator from Illinois when on the morning of June 10, 1937, he stood before the House of Delegates of the A. M. A. assembled in convention and stressed the facts that were the handwriting on the wall for the bill now introduced they were for the most part so benumbed by the Senator's famous siren tongue that they could not read between the lines. Some of the cagy-eared picked up their auricular organs and hem-hemmed to themselves,—and opened their eyes and set their teeth when in the June 26 issue of J. A. M. A. was reprinted the Senator's address. Because of the importance of that address it is reprinted here. Careful reading of it is urged upon every physician. To epitomize it accurately, honestly would require the penetration of Patrick Henry. For this speech seduced when it pretended to save and its every phrase is a Judas-phrase in its attitudes towards medicine and its rights and the rights of the medical profession both as scientists and as citizens.

From start to finish this masterpiece of political English is a push-lined threat, hypothecating what *will* happen that *will be worse, far worse* if the medical profession does not stand up and swallow this insulting dose of communistic nostrum that has been so ably mixed in Washington, D. C. "The Senator states he does not agree with the committee.

"The Senator gave assurance that the Social Security Act is to be revised at this Session of the Legislature and that he is on the committee from the Senate designated to write in proposed changes. He informed the House that some of the members of the committee are firmly of the belief that all physicians practicing medicine in any form should be examined and licensed by the Government as well as by the various States, and that it has been proposed that they be re-examined every five years.

"The Senator stated that there is a new order along Social lines in this Country and the Medical Profession alone is not affected, but that it will affect all other professions and business in general, *even his own, the legal profession,* must have some readjustments.

"He stated that he does not agree with other members of the Senate Committee who believe that a plan to provide medical care for the underprivileged in this Country supported by taxation, should be controlled by political appointees, but that it should be nept under the control of the Medical profession. He said they are even contemplating the placing of physicians directly under Governmental control as was the case with the Medical Corps of the Army during the late World War."

May we remind the profession that "there are none so deaf as those that will not hear, and none so blind as those who will not see?"

He who lives by theory alone—and in Washington's tax-financed aristocracy that appears to be the medium of support—is on a par with making a living by following the form sheets of horse races.

Doctors, each and every one of you please read and digest every word of the speech of Senator Lewis. Then you will be prepared for the shock you will get when you read the bill he introduced to the Senate on Juy 28, 1937.

SENATOR LEWIS' SPEECH IN DETAIL

Here is a reprint of the limpid, silvery oratory with which the Senator from Illinois filled the ears of the members of the House of Delegates who attended the convention of the American Medical Association in Atlantic City, N. J., during June, 1937. The sons of scalpel and bolus had forgotten to stop their ears with wax, a la Homer. So they were beguiled.

But the *eyes* of those unfortunate listeners had not been sealed. Nor are they now! And a careful perusal of the Senator's speech, in *black and white,* will reveal in an instant the preponderance of BLACK over white where the medical profession is concerned.

Gentlemen of medicine, we present you, in his own words and specious phraseology, as he spoke at the A. M. A. Convention,—SENATOR LEWIS.

I recall with great gratification when you did me the compliment, on the suggestion of our distinguished fellow citizen Dr. Fishbein and your organization, to let me have some words with you in a previous meeting. Then I boldly took the liberty to chide my brother profession on the fact that they remained always doctors and declined in the political world to be citizens. I recall that I dared to point out the changing affairs coming in the world, and how I saw that the influence of the doctor in the family and on the citizens where he lived was going to be so necessary that, if he exerted it, much would be done to avoid what I saw was a coming complication and serious confusion. If he deferred on the delicacy which many of them have—indeed all of them—that being doctors they must keep hands off of political subjects, there would be much to regret. There would be so few laying on hands in an unselfish attitude to win respect for the physicians.

Today you have been kind enough to let me visit for some reasons that all of you have not had time to understand. That is why I so audaciously asked the privilege to speak again to you.

I thank you, dear Mr. Chairman, for your reference to me, particularly your kindly and generous flattery as to the kind of Senator you were good enough to speak of. But I want to confide to you something very confidentially among professional brethren—I wouldn't attach too much importance to that designation called "Senator." . . .

[Here Senator Lewis interspersed an anecdote about the Senate.]

Doctors, I have a few words that you will allow me. I am sure, to express. I wanted to have some words with you, not to advise you, but to ask your advice, that you may understand my position. Busy as you are in your own matters, I reveal to you that which has been greatly disturbing me.

I helped write, helped prepare, and naturally as a whip and the parliamentarian of the Senate helped pass, the law you refer to as the Social Security Law. I address myself to that feature which concerns the doctors. I have not been able to agree with the gentlemen of the committee and find myself very much at variance with nearly every one who seems to touch this subject.

In the first place, I want you to know that I have felt that our country is so far away from the necessity of directing matters of the application of medicine as coming from you gentlemen that when we did approach

it we approached it as a political subject. We approached it on the basis of what might be called charity and relief. I fear we quite overlooked that there was a scientific situation that had to be considered in order that justice be done all those who would be affected by the result.

You gentlemen of the profession hesitated to touch this subject. Many who felt kindly, and who in your local organization have ever done so much to aid the miserable and relieve the depressed, still shrunk to the point almost of resentment against government assuming to sit in direction as to your method of the application of your science. There was within you that in which I assure you the law and the lawyer quite fully conjoin with you: a resentment against that thing called government assuming to dominate you, control and direct you in the matters where your discretion, guided by your sense of right and your learning, directed through your years of experience, should be the sole and whole influence.

You hesitated to accept the suggestion and you naturally felt that there was an attempt on the part of the government to take from you initiative and independence of two relations, one as doctor, the other in your contractual relation of doctor and patient. I beg to say to you that you have reached a point where the change in all government must attract your attention. If you feel, dear gentlemen, that setting about in the pursuit of your undertaking and preparing the course of this great profession which you undertake to guide there has entered something of innovation and invasion, I beseech you to pause and realize that there is nothing that is not now undergoing some form of encroachment by those who fancy they know a system better than that prevailing, or by those who, because of power politically, dominate with the control an office may give.

May I speak of myself? Where I am we have a band of men among whom is your servant. We are having serious war against what is known as a set of rules called Supreme Court of the United States Rules. They are a body of law in which the whole profession of the law and its method of practice is being revised. A new system is being put upon the lawyer, beneficial let us feel in many respects, to redeem the law from being looked on as an instrument of either mystery or persecution, but which we as a profession hesitate to accept. We have been fighting and continuously opposing it, and from the very spiritual reason that you gentlemen in your profession have not been inclined, taking you generally, to adopt this invasion upon yourselves.

But, doctors, the question for you is not whether you like it or whether you don't; whether within yourselves you feel you are better for it individually or not. The question for you is, What is to be done about it? I want you to recognize one of those who recall that all your past has been that of the doctor and its patient. The patient steps up now and says "I have a voice unto myself. I am the subject of this treatment, and I am either to be the beneficiary or the victim of your procedure." Yes, and then he is having those around him that teach "Well, what right has this man anyhow?"

"He is a man. He has a right as a man."

"Correct."

"And he has a right to learn these systems which he speaks of as medicine."

"Also correct."

"But what right has he to organize a society and say to his fellow: 'You can't come into this society unless you conform to certain regulations we have made for you and then pass examination and in this be so complete that we will give you our certificate' and yet in the meantime turn to the state and say: 'But you can't make a certificate for us or create a society or organization that prescribes limitations.'"

Then comes the other to rise up and say: "Yes, but you doctors have been a busy lot dividing yourself between those who sincerely in your profession seek to alleviate distress and others who look upon your profession as an avenue and an agency of enriching yourself, and between these two haven't you overlooked the fact as to who you are? You forget that everybody, around you has been regulated by the new order of government. That man James Hamilton Lewis and his colleagues, who are they? They have from time to time been compelled to submit first to their bar association, then to some regulation, then to the right of the judge to expel them from practice, and now under the new theory their higher court, called the Supreme Court, to give the privilege even to let them practice, and if to practice to reserve the right to reform them, supervise them and dismiss them. In addition to this there has been created for those lawyers the right of the judge to name any one of them to defend and represent any human being, and as their oath to their duty is similar to that which is your distinguished Grecian oath to your profession, he has no right to complain. And if he attempts to do so he will be dismissed from the privileges of collecting his money by the law."

They turn to you doctors and say: "Do you recognize, Mr. Doctor, something else of yourself? What rights have you, sir? You have learned this that gratifies you and in your heart you would serve your fellow man. That is gratifying to all those who know you. But what right have you to charge money for it? Where do you get the privilege of exacting the right to make your fellow man pay you? You get it because you give a consideration of service and you have a right to have the exaction of a fair compensation. But you go further. The state authorized you as an officer of the state to proceed into the tribunals of the state called the courts to enforce payment." Do you know, you can't collect your money, you can't testify? You have served a man a year or two, and nature in the course of things takes him away. He has a large estate or small; we will speak of the large one. You know what is due you. Do you think you can get it? Under an ancient system of the law handed down long ago to prevent the living from putting words in the mouth of the dead and thus working a fraud, there is a provision of the law which we adopted that prohibits a man who brings suit against that which is dead from taking the witness stand; he cannot testify. What is the result on the doctor? The result is you can't get on the stand and testify how long you have served that man, the

nature of his malady, and bring in your brethren to show that your services called for scientific application, and you are not allowed to speak of what would be the value of your service. You must take your chances to try to get your money out of the administrator, the executor of the will, by whatever system can be devised by those of your brethren who know nothing about that which you could have testified had you been allowed to tell the truth about it.

I mention this only to show how little you have been regarded within the processes of the law as to your real rights in the collection of that which is due you.

In the meantime, how do you think you stand now? You are giving attention for a moment to some advice from one of your fellow citizens on a matter which he dares to assume you have not thought about and to which he presses you now for serious deliberation. Are you aware that in the last forty-five years there has been a gradual accumulation in matters of national health, immigration, etc., of a form of federal procedure touching your conduct on certain classes of people—sometimes we speak of them as foreigners and sometimes immigrants—under the narcotic administration? Are you aware that you have been admitted to the practice in the state in which you live, that under that practice you are conforming to some regulations? But I propound to you: What right have you to take up any of these matters federal? Where do you get your rights? I am a lawyer. I must be admitted to my state bar; I must be admitted to the county bar, but I must be admitted to the United States federal courts before I can rise in a federal court to seek in behalf of my client his rights under the federal law. Do you know what is going to happen to you? That is why I want a word with you seriously. You are going to have a certain set of individuals, thoughtless from my point of view, meaning nothing unkindly to them, who are shortly going to demand of you that there be a system of examination and application by the federal government on every doctor of America and to prove his right to be admitted to practice under the federal law in addition to that which he is now enjoying under his local acts. Then we will come about to the thing which I am utterly against and wholly abhor but which I tell you is on its way: the designation of a certain class of doctors named by the President or by some officers of the federal government, who then become a board who are to pass on their fellow doctors having the right to be admitted to be a practitioner under the federal law.

Naturally, something in you says "Lewis, you don't really mean that there is an attitude of mind of that kind in the land?" And I am compelled to say to you, my dear comrade, not only do I mean there is such a prospect, I mean to come here today and tell you it is on you and you have got to pause to consider it, and that is why I have come to ask your advice.

I helped to draw the provision that relates to the doctor. I have been one of those, as our dear friends from Chicago will tell you, who advocate that you doctors take into your hands the system by which the poor could be cared for, hospitalization provided for, a system of guardianship so secure that the individual can be counted on at all times to be taken care of, however poor, however unfortunate. You say "As patient?" Your friend Lewis says "No." I dismiss the thought of patient, much as I know you have to carry it. I am compelled to tell you that government is on its way to saying to you "Hold up here, Mr. Doctor, we are not asking you to do anything about a patient. Where do you get this that we hear about that we are daring to interfere with your personal relations between you and your patients? We know nothing of patient, don't recognize its existence. It is your creation. We recognize an instrument called citizen who is essential to the welfare of government. He takes the form of man or woman. You have professed to be able to help him carry on his life. We need his life for usefulness in civil affairs, for the conduct of affairs of life in its civil nature, in military for the defense of his nation. And now since you assume to take care of the mother of that child that is to come forward and the mother herself that is to give birth to and help guide it, and the father who must help maintain and sustain it, we are compelled to tell you that we have got to treat you as an officer of the federal government and turn you into being such and ask you to consider the subject of yourself as an official of the federal government taking care of the citizen."

Then, since that is the position in which you are going soon to be put and which every hour you reach nearer and nearer, pardon me if as a brother professional man it is nothing less than absurd for men to come around you and say "This is an invasion, it ought to be resisted, it ought to be resisted, it ought not to be adopted."

Your answer is "It may be you are right, but it is the policy that seems to possess mankind in his advances all over the world, and since it is to us to be acted upon, Lewis has come down to make this suggestion."

Gentlemen, I desire to reverse the situation. An amendment is now pending. I have had it hung up as like on a hook so I could come down and chat with you. I want the position wholly changed. Instead of the government taking charge of directing the doctor as to what is to be done in the matters where his science is of first application, I want the government to place the doctor in the position where he can direct the government.

Two things are ahead of you, brethren. You come down where I am and listen to the quiet and silent chat and then the whispered voice that beseeches you please not to communicate them as the source of your information; contemplate the movement already afoot by certain well meaning gentlemen who fear some other gentleman and who suggest to your representatives in public life the necessity of picking out certain favorites and constituting them as a body that shall have the full control of your great profession in order to tell each where they shall act, how they shall act, in what manner they shall act, and in every manner they shall serve. Come down close and find out how severe it is we have to contest against that and find oftentimes we are charged with ill manner because we don't wish to have those things whispered to us quietly to be put into the law without some voice to the general profession.

That brings me to say to you it is my judgment that the time is come when you have got to say to your-

self "We were willing, and have been as members of organization, to do charity everywhere. We have been doing it for constant years. We pay out of our pocket for the medicine. We tender such services as we can. We give our hours at the expense of other patients to whom we owe an obligation. We join wherever we can in the local government or the state government in every form possible. We obtain no compensation. We have no manner of receiving it. We lose that which we could have made from other sources. And you, Mr. Government, while you have been busy considering what you feel should be the welfare of the needy, you have given no thought as to the rights of the individual you enforce to serve the needy."

Where, then, does that doctor stand?

Physicians, I have a proposition which I take the liberty to give to you, for it is on that that I ask that at some subsequent time you will be so good as to consider that I might through the offices have the benefit of your suggestion. It is that which I feel our committee, knowing that I am to come before you, is expecting to hear from. *I am pleased to tell you that as I left I called the President and told him I was on my way to have a conversation with you gentlemen. I would like to deliver from the President of the United States a message coming direct with his authority. He said that I was authorized to say to you he knew something of your meeting, he had been for some time observing the courses of the doctor, that he was not far removed from constantly keeping up with the features of the profession, and he wished you success as to your undertaking. If I use his exact words, he hoped that you would find a way to cooperate with him in such method as you would jointly find would be to the service of the helpless and the afflicted within such province as you felt government should undertake.* I deliver the message of the President and assure you it was a source of great pleasure that he understood I was to be here.

And here I take the liberty now to define to you what I propose should be the course as to yourselves. That I see that you are advancing to be treated as a federal official there can be no doubt; that you are on the way so soon as you qualify as a doctor in your state and your local situation, to be soon made a member enlisted in those of the profession of the federal government, and as such to be put something in the position of a captain and officer of the army and the navy. You are to be put in the position as one who is to be recognized by the government and subject to the service of the government in protecting your fellow citizen, but in the meantime I trust recognized as having your own rights which at the time may be properly preserved and guarded.

May I offer you the suggestion I have pending? I feel it is most fair to say to a doctor "Doctor, please step out from your business or family." You have children, too, and they ought to be educated; you have homes to be cared for; you have a profession to maintain; you have a prestige to uphold. I don't feel it is right, sir, despite all these attitudes of mind you get from those who have not had time to think upon it to say "Please step aside from all of this, sir, and give your time wholly and largely to the instrumentality necessary to aid those in distress and see they are lifted from it, cared for, hospitalized, medicine provided, in care and watchfulness day after day, and while it is at the expense of yourself financially and in all respect perfected, you owe it."

"To whom?"

"You owe it to what is called society."

"Am I not one of them?"

"One of what?"

"One of the thing you call society."

"Yes."

"Well, is nothing owing to me? Who paid for this education I have? Who paid for the years in which I have gone to obtain it? Who is likely to take care of those whom I am supposed to be maintaining? In the meantime, what effort is being made at least to recognize me as being one of this society in having something of the similar rights of those to whom you now send me to give my whole time and devotion?"

Therefore, dear gentlemen, I will with your consent when you have later given it consideration, if you feel it is agreeable, press on this branch that happens to be mine which I serve (you know what is called chairman of a subcommittee) that I want the present Social Security Law amended. There are amendments pending. You gentlemen too well know that the law is not new and there will be many changes. There are many eminent doctors who feel the Swedish method should be taken up by us and practically adopted, some others the German, that which prevails in Denmark, and interesting to add there is a system of which I knew absolutely nothing which seems to come from China. But the suggestion is that nevertheless you be placed in the position of complete obedience to whatever the law may enforce. I say I want that poor, that afflicted, that suddenly injured, having no funds, unable to make his private, individual contract, to have the right to summon any doctor all around him, however high, however elevated, without regard to what his elevation is, the quickest, the nearest to him for service; that doctor at once turns to the obedience of the demand, to the obedience of the need, and this patient is taken charge of at once as if he had been employed by a paying patient. He promptly sees the need of this patient for hospital, and to the extent that the patient needs the hospital this doctor has a right by virtue of the fact that he is now a federal auxiliary to step into any hospital of any kind at once and have this person attended according to the need as the doctor sees it.

And then what shall follow? It is that on which I am having my discussion. I insist that that doctor, chosen as he is at any time by any one in this need, shall have promptly the right to write down his bill, his exact charge, what he feels with his sense of honor is a fair charge for the service he is doing the patient, for the service he is giving at the hospital, for the medicine he may have to more or less if not credit for be responsible for, and he frames this charge in an intelligible, simple manner, in an ordinary bill. He takes this bill by himself or by mail or by his messenger at once to the agency where this doctor serves who represents the social service and has this bill promptly filed. He may have to repeat this a dozen times a week, he may have to do it a hundred times a month, but wherever he does this work he sends his bill for this

work (I come back to you now) not to the patient but to the government whose citizen you are protecting, whose agency and power and force are needed for the carrying on of the thing they call the society you are preserving. With this bill so sent in, you promptly are paid on the theory that, of course, you would not defraud your government, but with a provision in the law that any doctor who could descend to take advantage in the way of price or misrepresentation be treated like any other fraud, and any patient who represented being unable to pay and took advantage of the doctor, taking his services as well as from the government, be likewise treated as a direct instrument of the fraud and offense against the government; and that by this system we openly announce and we publicly proclaim that doctor as having the right to practice as an immediate representative of the federal government in whatever he attempts to do in behalf of that particular being and instrument called the citizen; that his compensations be so arranged and that he arrange them in such manner consistent with his own sense of honor and proportionate with what he knows has been the service he has been giving.

And now, dear friends, I conclude. As you know from my remarks, I am a lawyer—not always successful. I have had the usual difficulties, the ups and downs that usually follow, but I have not been without experiences in connection with your distinguished profession in many different degrees. I do not think it wise that you doctors should have this system of your compensations put under the control of gentlemen who are to be appointed to be in control of the board and to be given the domination of these privileges as an opportunity for political office. I have seen lately, and I mean nothing unkind—I am speaking to my brethren of the profession in the sense of our respect for each other, and have watched attendance to the poor creatures victims of the World War and have seen something of the service administered to them and the methods of its administration through those who are appointed as political office appointees, and those appointees, meaning ever so well, let it be understood, in all government without regard of politics of any nature. I have watched it day by day grow to where they have so imposed on the government and unhappily the victims of the disease and disorder until the whole thing has been converted into a political machine that has worked a persecution on the afflicted and a robbery on the citizen. I can't see how that can any longer continue among an intelligent body and a patriotic order of citizen. I therefore, my brethren, can't accept—until I get better advices I decline to accept—that this board that is to be constituted is to be made up of political appointees called Democrats or Republicans or whatever designation you please, whose mere political appointees shall have the right to name those who shall sit as to your amount of fees, have a right to revise your bill, consider your services, passing judgment and review on them. I cannot accept it.

I want consideration from you when you have time to reflect on it. What method would you suggest to us in one of complete fairness to you, to your profession, of a system of appointees who shall be those who shall sit in judgment on your fees, the methods of your payment, and, if you please, sometimes the quantity and quality of it? And who is it that shall sit to decide as to each of these geographic localities what particular boards shall in that locality make the board to which you must send your bill and from whom you must take your direction or counsel?

What method do you advise by which you shall not be put out of your character as doctors and subjected to merely a set of servants under the orders of those who call themselves political appointees? I can't take the latter. I am in revolt, and I burden you by coming over here and asking that I may be heard, because on this particular feature I am so much at variance with many around me that I fear I must confide to you that there is a great deal of distraction, almost sometimes amounting to violence in dispute.

I want you to take this subject in hand. There is the law. It is very deficient. Many of the principal features of the right to enter into the subject at all over the state and the government, I might say, of your offices, your duties, was very much debated. That is past the time. The question for you and which I am seeking is how to deal with the doctor, what to do with his profession, what to do with his science that he has equipped himself to discharge, and it is that that I have come to seek from you that you take charge of the subject and give advice to your government, that you please offer counsel to us, as to what in justice to your whole profession first would be the best system to put into effect some organization that shall have the voice with the doctors dealing with the doctors. Second, what shall be the qualification apart from medicine, of character or of experience, if you have it, of those who will serve on the board in order to be those who directly serve to the local board? In other words, dear gentlemen, your principal board in Washington I am worried about. I don't want it made up of gentlemen appointed merely because they may have been effective in stuffing some ballot box. Nor do I want that other set who are to be rewarded for vigorous party service, however sincere, but whose knowledge of medicine consists of that which a hen would have of a neighbor about to pick up her lunch. I want some system that will assure that man who is on the way to serve that patient that he is going to be treated by those who know the value of what he is doing, on the one hand, the service of what he is doing, and that he too be protected by his government as one of those citizens and patriots that they are seeking to preserve.

Citizens, you have a great oportunity and before you a great authority. It is for you to say whether this great system of humanity is to be successful or whether you shall shrink again out of a sense of modesty and not wishng to touch public affairs allow it to drift to where it will be handled by those for political objects or other purposes that shall destroy its great usefulness. It is to you we who are public characters and public agencies in your line must look.

DR. CHARLES BERT REED IS TENDERED HONORARIUM

The golden anniversary of Dr. Charles Bert Reed's practice of medicine was the occasion of an elaborate testimonial dinner for this gifted physician, given by Wesley Memorial Hospital, Chicago, at the Union League Club.

Dr. Reed was graduated from Rush Medical with the Class of 1887. Numerous of the surviving members of that class attended the dinner, while others, among hundreds of eminent citizens from coast to coast were represented by telegrams or cables.

Dr. John H. DeLacy gave the invocation, and the address of welcome was by Paul H. Fesler, superintendent of Wesley Memorial Hospital.

"Wesley hospital has been through a siege," said Fesler in part. "But during the past five years when wolves were at both the front and the back doors, Dr. Reed's motto was "Who is afraid of the big, bad wolf?" In the battles of the American Medical Association, with economic problems, no one has been more aggressive, fearless or unrelenting than Dr. Charles Bert Reed. To such men as Dr. Reed, doctors, hospitals, and the public, owe much. I now have the honor to present Dr. Phillip H. Kreuscher."

To Dr. Kreuscher's able tongue fell a recapitulation of the life of Dr. Reed, from birth up until his graduation from West Branch High School, and later the Rush Medical College.

"His honors have been many," remarked Dr. Kreuscher. "Dr. Reed was president of the Chicago Medical Society in 1931. In 1935-36 he was president of the Illinois State Medical Society.

In 1936-37 he was a member of the Council of the Illinois State Medical Society and he is an Associate Professor of Obstetrics of Northwestern University Medical School. His hobbies are fishing, not in Wisconsin, but rather into the wild and uninhabited districts of northern Canada. Canoeing is another hobby of Dr. Reed's. As to literature, his efforts in that direction savor genuinely of genius. His scientific writings have encompassed many topics including medical books for nurses; volumes on gynecology, and lay writings that will live through the years. Titles of these include "Duke," "First Great Canadian," "Masters of the Wilderness," "Four Way Lodge," "Curse of Cahawha," "Eleanor of Acquitaine," "Obstetrics for Nurses," "Operative Obstetrics on the Mannikin," "Clopton Havers," and "Albrecht von Haller." Dr. Armstrong, a confrere in the class of 1887 will now speak to us."

"I am what is a rarity at present," said Dr. Charles A. Armstrong, in part: "that is, a country practitioner. O'Brien has laid down the requisites of a fine postprandial talk when he says, 'make a good beginning, and a good ending and get the two damn close together.'

"At the end of the term at Rush it was the custom to hand the students envelopes containing slips of paper. If a man received a white slip, he had 'passed.' If the slip were green, he had to take the year's work over again. In '87 the men received their envelopes and when Dr. Reed opened his and found a white slip he let out a mighty yell and kicked the chair ahead of him so that it fell to pieces. One of the professors remonstrated and said Dr. Reed would have to pay $5.00 for the chair. With that, Dr. Reed pulled out a ten dollar bill, handed it to the professor and kicked another chair to pieces! However, that ten dollars was probably never put in the treasury of the school.

"Out of a class of 138 there are about 25 left who are evidently not wanted above and for whom the other place is too crowded.

"All the class is so glad you are here, Dr. Reed, and we hope you will stay here for a long time and that you will be happy with your family and at Wesley."

Dr. Fred G. Novy, another classmate who has gone to "bugs" and is Professor of Bacteriology at Michigan University, was next introduced and said:

"When Dr. Reed and I attended high school, there was only one in Chicago. This later became West Side High School. Dr. Reed went to Ann Arbor for a couple of years. I had the police commissioner look up records as to why he left so early. However, the report was negative.

"Dr. Reed is a good fisherman, a lover of animals, and he is a good doctor. Dr. Reed, we hope you will have many years of health and all replete with the fullest satisfaction.

Dr. Robert Blue, Chairman of the Staff of Wesley Hospital, said: "I have known Dr. Reed for more than 30 years. We became acquainted when I was a Junior at medical school and I have been enlarging and expanding my vocabulary

ever since that time. If I studied Webster's every day I could never acquire a vocabulary equal to Dr. Reed's. Dr. Reed is remarkable in his facility of expression, and in the pungency of his remarks.

"Knowing Dr. Reed as I do, I have to pinch myself to realize this is his fiftieth anniversary. The older man's advice in council has more weight—his knowledge is tempered by experience. Age is a condition of the body and does not necessarily affect the mind. Goethe did creative work when he was an old man. Bacon has said: 'I have discovered it is possible for any man to know many things well.' Bailey—'Mind is like the firefly; it only shines when on the wing. When once at rest, it dies.' But Dr. Reed has never rested. is mind is supple as the willow.

"Heartiest congratulations from the Staff at the Hospital and appreciation for your work for the Hospital. We look forward to many more years of work together."

Dr. Kreuscher remarked next: "Some years ago in Nebraska, I had the pleasure of meeting a young man whom everybody seemed to respect and admire. As Dean of the Medical Department of the University of Nebraska, he built up a first rate school. He came to Chicago to Northwestern and is now Dean of Medicine at Northwestern University Medical School. I refer to Dr. Irving S. Cutter. Said Dr. Cutter, "I think that no occasion of this sort is quite in keeping with what it ought to be. I should like to see the great gathering of the children whom Dr. Reed has brought into the world. We would have to hire the stadium and possibly an addition.

"My part tonight is to express our appreciation for Dr. Reed's artistic side. Mr. J. Christian Bay of the Crerar Library sent me his 'Biography of Albrecht V. Haller.' Here is a real writer, I thought. Others have followed since—hidden brochures, and each a gem in its way. He is a philosopher—a John Burroughs and even better for he has held the attention of everyone. His medical writings will survive for decades—for centuries, but what he has done in a literary way has brought into the Engish language some of the most beautiful, true and artistic creations of letters."

The next speaker was the President of the Board of Wesley Hospital, Frederick J. Thielbar, who said: "I can't compete with the men who have worked with Dr. Reed. I have known him for 30 years, and these are some of the reasons why I admire him.

"One night I attended the opera at New Orleans and I talked with a man who had left Chicago because 'he did not want to climb a ladder for a dollar.' A successful man never retraces his steps. I have respect for a man who can climb ladders in Chicago and get to the top. Seventy-five per cent drop out. Dr. Reed has endured—a tremendous accomplishment. He has climbed up and up for 50 years, and we can depend on him for another 50 years. I admire a professional man with high ideals who lives up to them. Dr. Reed has done that. Great men must be individualists. There will be no great men in the future if we have no rugged individualists but only a proletariat which has been fused into one mass. The Profession has its back against the wall. It is being attacked. Dr. Reed is a rugged individualist, but he has brought in other elements—a higher culture, a higher refinement to medicine. The man who has time to give his attention to other things that make for refinement and culture, will be a greater man because of it. The younger man wants nothing but operations and the practice of medicine. He does not plan for a full well developed professional life. Dr. Reed, on the contrary, is a great doctor, obstetrician and a man of letters. I want to read, too, a letter from the Board of Trustees of Wesley Memorial Hospital to Dr. Reed: 'By direction of the Board of Trustees, I have been instructed to send you the congratulations of the Board on this anniversary date and to express appreciation of the years of work at Wesley and it is our hope that your direction will continue for years more.' "

Dr. Chas. E. Humiston said:

"I take it that those men who have been called upon knew about it. I can testify that I for one was above suspecting it. I appreciate the honor of standing up and saying that I have known Dr. Reed.

"We only hope he will be spared long enough to demonstrate to the few who do not know him that he is moving in the right direction. I count it a privilege to have known Dr. Reed. Many of you are testifying as to your high regard of Dr. Reed, and that raises you in my estimation.

"Integrity, fearlessness, dependability, a fighter yet. I congratulate you on the eminence to which you have risen, and hope you will con-

tinue to fight for the correction of wrongs. We expect valued service, and will not be disappointed."

Dr. Kreuscher then read telegrams and letters from friends of Dr. Reed, and added, "Charlie, it isn't quitting time. There is lots of work to be done. We wish not a return of another 50 year anniversary, but many more years of activity."

We shall now hear a solo, "Take Joy Home."

In conclusion Dr. Kreuscher said: "Thus endeth for all of us a perfect day."

To which Dr. Reed responded as presented herewith.

SPEECH OF RESPONSE BY CHARLES BERT REED

Mr. Toastmaster and My Good Friends: I would be insensible indeed if I did not feel deeply and keenly the spirit of this occasion. I am double indebted to the young people who initiated this testimonial and brought it to so beautiful a consumation as well as to the more than generous friends who have left their homes and other pressing interests to make this event memorable and distinguished by their presence.

The greeting from the Staff of Wesley is highly gratifying and encouraging as approval by one's colleagues must always be, while the felicitous manner in which it was delivered by Dr. Blue adds a note of personal sincerity and affection to the report which fills the heart with pride.

The kindly message which Mr. Thielbar bears from the Board of Trustees is significant of the closer and more cordial relation which now exists between that body and the staff. It is especially welcome as a mark of the warm cooperative spirit which now prevails as well as the personal recognition which it so pleasantly betokens.

I trust Mr. Thielbar will assure the Board of the comfort and satisfaction which that message brings.

I rejoice that I am here this evening for many reasons—First that I am here—and that I can be encouraged in that satisfaction by this gracious company.

Again that I may have the pleasure of meeting members of my class whom I have not seen for 50 years.

In fact, I am told only 22 remain out of the 137 who graduated then and of these only three or four of us have met even occasionally since.

It is a pleasure to look back also upon this last half century—which my friend Dr. Carr has so aptly named the "Age of Osler's Eleven Editions" and realize that more progress has been made in the science of medicine than in all previous history of the world.

In so short a time have thirty or forty plagues, pests and epidemics been conquered, glandular and alergic disorders have been etiologically exposed and therapeutically remedied while surgery both local and general has undergone the most marvelous transformations.

Again I rejoice in the final settlement of the Wesley Hospital question. Fifty years ago the corporation received its legal authorization, in 1890 it was relocated at 25th and Dearborn Streets by the beneficence of Mr. Deering, in 1913 we began to hear about a new hospital, then came the war. In 1929 the thought of a new building on McKinlock Campus was again in strong favor, then came the depression. In 1936 the idea was hopefully but incredulously referred to—when out of the murk of disarray stepped Mr. Jones with the ransom of an Emperor in one hand and the plans of our magnificent new building in the other. As you all know, the first spadeful of earth was turned up four days ago.

Another event which has, I think, been mentally illuminating to me and forms a part of our picture was the Hobby Show which was produced by the Medical Society a few weeks ago.

In this exhibit I was amazed by the extent, variety and excellence of the work which the doctors brought to our attention.

Here were paintings, sculpture and photography of every kind, wood carving and cabinet making, rug weaving and toy ship building, collections of old pistols from the earliest day to the present, collections of bows by modern archers, trophies of the hunt in foreign lands, and exquisite collections of bird's nests—not the ordinary work of Jerry builders—but real architectural triumphs by experts. Vocalists, performers on the violin, the flute, the piano and the harp were numerous and of unusual excellence, added further artistry to the display. It would not have been possible 50 years ago.

It will be asked at once how a busy doctor can find time to do such work without negect of practice, or without the resentment of his jealous professional mistress.

If a man can devote himself to pure science like Dr. Novy, the problem is simple and neither his wife nor his mistress will regard his alien concentration as a violation of the Seventh commandment, but when the human element enters, as it must in general practice, the problem is more involved.

Here the doctor carries not only the responsibility of the disease and its management but also the burden of anxiety from family and friends, which markedly intensifies his solicitude and when it becomes too heavy, as when a tragedy appears—the doctor seeks a way of escape, he seeks a concentration of mind elsewhere which gradually composes his soul to meet again with courage and fortitude the problems of existence.

Furthermore, some men are swept enthusiastically into a medical practice which wholly absorbs them but some cellule of the soul has been neglected. As the man grows the cellule grows in size and resentment, until it demands attention as a Supreme Feeling which will be no longer denied.

The doctor is compelled to relent. At first tentatively but less and less reluctantly he yields to the feeling which gradually involves the mouth and lips for horn, song and flute, the arms, fingers and feet for harp and piano, painting and sculpture and so on until a most excellent technical dexterity is unconsciously acquired and the soul rejoices in the new freedom a complete humanized harmony—with no more difficulty than that of learning to walk.

Furthermore, some of these men have been touched by the magic Song of the Sirens. This song is no mere sensual appeal as Leith has shown but rather the first note that rouses the soul against the prescribed and sanctioned, and stirs it to impatience with the ordered life and prearranged happiness.

It becomes mutinous against the care which would shield grown men from the perils of their manhood.

The Song of the Sirens is the music that awakens to arduous dreams, the signal which suddenly disgusts the soul with things feasible, finished or thoroughly understood and calls one out into the vast unchartered kingdoms of the vague. For the Song of the Sirens means Romance, and once touched by a single magical note of this song a man is changed forever after. He no longer sees a pool of water but he imagines the wavering trail of moonlight on its surface, he hears the torrents rushing through vast gorges or falling with thundrous acclaim over steep declivities. While bathing in midnight lakes he hears the happy call of the white throat, the weird cry of a distant loon, the splash of the beaver's tail as he plays upon the water, the lapping of the waves against the pebbly beach or, lying back on his aromatic balsam boughs he watches the blue sky sprinkled with stars and the slow march of the constellations.

The Song of the Sirens awakes that restless yearning for the unknown which sober wisdom strives in vain to quell. But the Sirens are not ungrateful. They promise compensation. They promise the joy, the stress, the conflict and the puissance which carries the soul out to the great verges of infinity and holds her aswoon in the ecstasies of incredible life.

In the grandest epic which has come down to us from ancient times Homer relates how the wise Ulysses met, and for a time discomfitted the sirens. Forewarned by Athena, the gray-eyed Goddess, he swathed the ears of his mariners in sound proof wrappings, but he himself was eager to hear the magic song but not to yield. So he had his men bind him securely to the mast, but with open ears, and thus prepared the black ship swept nearer and nearer to the fateful isle.

The Sirens recognized the hero and lifted up their voices in song. Ulysses was moved and begged and pleaded with his men to let him land but they unhearing drove stolidly and sullenly on until a safe distance was attained.

In time, of course, Ulysses returned to his little kingdom of Ithaca, which he found in a a state of extreme disorder and lawlessness. With the strong hand of a resolute and competent administrator he put to death the C. I. O. agitators of that period and quickly restored serenity and law.

With the cessation of activity, however, the Song of the Sirens recurred. He had not escaped unscathed. The Hero was bored by the conventions, disgusted by mean things weighed and parcelled, and his awakened soul revolted at strictured rule. So, like other romantics, whether king or commoner, Ulysses turned over his kingdom to the legal heir—in this case his son—and prepared for departure to an unfettered life.

He called together the tried and true companions of his voyage, and described what he had

done and why, and in the beautiful words of Tennyson he exclaimed:

"Come on, old friends,
T'is not too late to seek a newer world.
Push off, and sitting well in order, smite
The sounding furroughs for still my purpose holds
To sail beyond the sunset, and the baths
Of all the western stars, until the end."

Or as lesser poet has said:

"Let us set forth, give me the helm again,
The Sea and Sky are mine, the adventure new.
Why stay my imperious sail, ye men,
To whom, nor hope nor dream is longer true?"

The dream and the hope of fulfillment. This is the real song of the sirens.

The dream and the hope of fulfillment has inspired the troubadours, the knights errant, the crusaders and all progressive spirits. The dream and the hope of fulfillment crowded all the laboratories of the world with enthusiastic young men after the discovery of the germ theory of disease, and made medicine what it has become in a single half century.

The dream and the hope of fulfillment inspired our trustees and Mr. Gilmore with the energy, persistence and patience to strive for a new hospital, and Mr. Jones to its accomplishment.

The dream and the hope of fulfillment stirred the sleeping artistry of the men in the Hobby Show to produce those astonishing perfections which should be a source of pride to the profession.

The dream and the hope of fulfillment forms the base of every man's aspirations, and so each of us has his dream and his hope, and as we push ever forward we may in time come upon those Fortunate Isles of which Ulysses speaks, and behold there the Golden Castles of the City of Romance glistening in the light of noon or perchance see only the reflections from its spires, pinnacles and minarets—shimmering reflections of the last rays of the descending sun in that mysterious realm beyond the baths of all the western stars—but nevertheless and forever we must dream and hope.

A REPRODUCTION DISPLAY OF PHARMACY IN CHICAGO IN 1850

After the last Apothecary jar was placed on the shelf, the final bit of rock candy adjusted in the glass jar and saddle bags hung on the wall, the sign "Keep Out" and the curtains covering the entrance and exit were removed and the public trooped in—to see the three most unique stores in this city, which are now on exhibit in the Chicago Historical Society. They gasped at what greeted their eyes and are still gasping. Nowhere else in Chicago or the middle west is it possible to see an actual 1850-55 Apothecary Shop, 1845-50 General Store and Postoffice and 1840-45 Boot Shop.

Compare the wooden mortar and pestle over the door of this 87 year old clapboard apothecary shop with the neon signs signalling present day drug stores. Then, there were no crepe paper rosettes to color the window display. Large decorative apothecary jars filled with blue and red liquids supplied the color.

Around the base of the apothecary jar in the Chicago Historical Society exhibit, and in the best taste of the typical apothecary of 1850, are shown velvet lined cases on which rest gleaming sharp steel amputation tools, complete with nickel plated saw. Tourniquets, and bone setters complete the window display. Under the oil burning lamp, in the shop, a genteel lady in mauve taffeta with a tiny straw bonnet discusses scent powders and perfumes with the pharmacist.

Even though the 1850 soda fountain, with five available flavors in the shop, bears little resemblance to the current version of shining chromium and white tile, it proves that the idea of a combination soda fountain and drug store was not original with today's druggists.

Various colored glass strips form this urn-like hollow "soda fountain." The kerosene light inside the cylinder shines through these panels, coloring the water which bubbled constantly from six spigots surrounding the urn. Its purpose was twofold; to advertise flavored soda water and washglasses. Lemon, ginger, strawberry, pineapple, and sarsaparilla were the favorite flavors in those days.

Much of the material in the drug store, including the gold labelled drug bottles of assorted sizes filling the glass cases and lining the shelves was procured from the Hertzman Drug Store in Chicago, the Society of Medical History, the

late Dr. Otto L. Schmidt and Mrs. Charles B. Pike.

From Chicago's earliest days, the health of its citizens has been a prime consideration. Those engaged in the erection of Fort Dearborn in 1804 were not only handicapped by lack of necessary tools, by want of food and sufficient clothing but also by a sickness called "bilious fever." The limited diet, summer visitations of ague and fever, long, comfortless winters on the shore of the lake when all communication with the outside world was broken, brought nostalgia and discontent. Lack of medical care added to the already overbearing hardships. The post doctor had but little equipment and only a small supply of medicines with which to care for those whom the hardships of life had laid low. One year after the founding of Fort Dearborn the sick list assumed formidable proportions, and conditions remained unchanged during the period of fort occupation.

The prescription books of the garrison bear testimony to the inroads of disease, particularly ague and fever, doubtless caused by the climate and the sad toll of death told the story of the lack of medical care.

Later, in 1832, the alarm caused by the news of Black Hawk's return gripped the settlers. The appeal for assistance was answered by two companies of regulars under Major Whistler, a body of Michigan militia and hurriedly assembled troops under General Scott. With them came Asiatic cholera, and the fort was converted into a hospital. The inrush of European and Eastern seaboard immigrants complicated the health problem in no small degree. Many came not only poor in pocket but infected with disease.

As late as 1851, the public health officer of Chicago was dispatched to LaSalle to inspect all immigrants coming up the Illinois River. Under the charter of 1837 the city council could indicate the location or restrain all business harmful to public health and comfort, could abate nuisances and direct the returning of bills of mortality. It was also empowered to name three commissioners as a board of health, as well as to appoint annually a health officer whose duties should be concerned with the prevention of the spread of disease. Quarantine regulations were designed to remove from the harbor infected shipping and to take out of the city non-resident persons with communicable diseases and all things infected by or tainted with pestilential disease. As a result of these advances the board of health dealt with situations so successfully as to prevent the development of too widespread epidemics.

All Chicago newspapers in 1850 carried much drug advertising on the front page.

Following is a typical apothecary advertisement in the four sheet Chicago Daily Journal of 1850:

S. Sawyer
124 Lake Street
Chicago, Ill.

Wholesale and Retail dealer in Drugs and Medicines. Paints, Oils, dye-stuffs, glass-ware, patent medicines, chemicals, perfumery, spices, etc. etc.

According to the masthead of the newspaper which listed the lineage rates, 12 lines or less for one year in this weekly paper cost $20.00. And in italics, this warning appears—"Transient visitors and advertisers, not subscribers to pay before insertion." More drug advertising was done during August and March than any other months in the early years of the cities' growth. Like many of his fellow Americans, early Chicagoans were vitally interested in the upkeep of his body and seized upon the opportunity to obtain such guarantee of longevity as Gregory's Bilious Pills which "if timely administered" would be found "very efficacious" in cases of at least thirty-four different maladies. Cough Drops and cough syrups, toothache drops, balsam of hoarhound, liniment, vegetable remedies, and many other devices to keep man's machine in good running-order could be procured. Nor need he be forgetful of his external appearance, for he had available such beauty aids as hair oil, hair dye, perfumery, dentifrice, and cold cream. Ice Cream made its appearance with the establishment of the first large drug store in the city in 1835.

Judging from the advertisements in early papers, nostrum manufacturers of early days possessed the same acumen and resorted to the same exaggerated claims for originality of discovery and virtues for his concoctions as is practiced by his descendants.

The January 2nd issue of the Chicago Daily Journal carries a column devoted to The Graefenberg Medicine in which it says that the medicine issued by the Graefenberg Company consists of a series of medicines pre-eminently adapted

to the disease for which they are respectfully recommended. However, immediately following this statement is a paragraph devoted to Sarsaparilla in which this drug is mentioned as a cure-all for no less than ten ailments.

Sarsaparilla's interesting history began shortly after it was introduced by the Spaniards to European Medicine after the discovery of America. At that time it acquired considerable reputation as a blood purifier but it soon fell into disrepute and was many times re-discovered and as often denounced.

During the thirties it was customary to place patent medicines with firms only on commission. The more saleable properties, like Brandrith's pills, Morrison's pills, Holloway's ointment and pills, were only sold at bookstores. This changed in the forties. All drug stores in Chicago were grouped together on Lake street within a block of each other and they generally became the agents.

Sloans' liniment, that great American "institution," carried one complete column of advertising regularly in the Journal. In this column, the linient was ballyhooed along with books on horses and cattle, requests for salesmen, testimonials as to the curative powers of Sloans' drugs and as proof of the pudding, the advertising declared that "a wonderful stir has been made about this medicine." Quacks were much denounced, especially the competitors who sold Sarsaparilla.

At present only forty-one drug prescription pharmacies are open in Chicago. And exclusive of the 1,826 independent drug stores, there are 37 drug chains operating in Chicago.

FARM POPULATION REDUCED SLIGHTLY DURING 1936

A farm population of 31,729,000 persons as of January 1, 1937, was estimated today by the Bureau of Agricultural Economics, compared with 31,809,000 on January 1, 1936. The net loss of 80,000 persons represents the first decrease in farm population since 1929.

The Bureau reported that 1,166,000 persons left farms last year, and that 719,000 moved to farms from villages, towns and cities. But the net migration off the farms was almost entirely offset by an excess of farm births over deaths: births were estimated at 716,000, deaths at 349,000.

The number of births on farms last year was the smallest, and the number of deaths the largest in 15 years of Bureau records. The number of persons moving to farms was the second smallest during this period, and the number of persons moving off farms also was the second smallest.

The Bureau said that "with a decrease in farm population there is a reversal of the trend observed during the years 1930-35, when farm population increased every year. Since 1910 there have been several periods when the farm population reported decreases. From 1910 to 1918 there was a decrease which became pronounced during the World War. Following the war, farm population increased until 1921.

"Farm population decreased between 1922 and 1929, and at the beginning of 1930 there were fewer people on farms than there had been at any time since the World War. From 1930 to 1936 farm population increased somewhat. During the past four years the number of people on farms has remained nearly constant, changing by less than 100,000 each year."

ONE PERCENT UNDER 1910

The figures reveal that the farm population now is little less than the peak figures of 32,076,960 persons reported for 1910, but much larger than the low of 30,-169,000 persons reported for 1930. The Bureau said that "the result of all the changes of the last 27 years is that the farm population today is about 1 percent less than in 1910."

Although the number of persons in the United States has increased by nearly 40 percent since 1910, the number of persons living on farms today is slightly less than it was in that year. Since 1920, however, more people have moved from farms than to farms during every year except 1932.

The Bureau pointed out that the increase in farm population between 1930 and 1935 was due more to the fact that fewer people were moving to towns and cities than to any great "back-to-the-land movement." But with the resumption of urban employment opportunities in recent years, there has been an increase in net migration from farms.

KIND WORDS FOR THE COUNTRY DOCTOR

The Chicago Daily News has the following to offer in praise of the Country Doctor:

Snow coils over roof and wall. Rain murmurs deeply. Summer heat creeps like a slow tide into the house. At any season or hour hands knock in desperate urgency on the door, or phone clamors to rouse the country doctor. He cannot choose but heed. It may be Maw Tecchy with the flim-flams. Grandpaw Gooch is gloating over a new 'tiz. But even more it may be the shadowing dark angel, or the answer to death in the advent of a child. Without fanfare or high reward the country doctor ministers to all ills that rural flesh is heir to, in the dark before dawn or drowsy noontide.

Only the other day at an obscure southern Illinois hamlet one of these unsung heroes pressed his own lips upon the lips of a newborn baby and breathed life into the tiny lungs. For that he was prepared, just as he is wise in mitigating Josh Pibble's imaginary lesions and Aunt Hepsy's old teeth. All the time he is no saint or reformer. He does what he can.

He knows every village or farm tongue which is stuck

out for his diagnosis of every ailment or simple tongue-wagging. He cures with his humorous mind more than with the latest medical speculations and experiments. As much as any man, he is the backbone of that American individualism, at once kindly and unflinching, which heartens and comprehends the simple folk who are the real roots of every country worth the name.

HEALTH INSURANCE OPPOSITION ALMOST UNANIMOUS

The Allegheny County Medical Society sent a questionnaire to its members, asking them to vote on approval or disapproval of compulsory health insurance. The *Pittsburgh Medical Bulletin* (26:345 [April 17] 1937) gives the result. Out of 642 members who answered the questionnaire, 633, or 98.6 percent, disapproved compulsory health insurance, and nine, or 1.4 percent, approved.

Cards were then checked with the American Medical Association Directory as to age, specialty and years since graduation. The results answered the repeated statement that the younger men are in favor of compulsory insurance, since, with the dividing line placed at 50 years of age, there were only two under 50 who favored, compared with 334 who opposed compulsory health insurance; while, of those over 50 years of age, there were seven who favored and 299 who opposed. Of general practitioners, 0.9 percent were for compulsory health insurance and 99.1 against; of specialists, 98.8 per cent were opposed and 1.2 percent in favor.

Like every investigation of the opinion of the physicians of the United States this one shows that they are overwhelmingly in agreement with the position taken by the House of Delegates in opposition to compulsory health insurance.

TOO MUCH SUNSHINE, BOTTLED OR FREE, DECLARED SERIOUS

According to California and Western Medicine

The absorption of California's widely advertised sunshine, either externally or internally, should be in moderation or serious results may follow. External consumption is represented by the sun bath and various other forms of irradiation in which either Old Sol himself figures, or his place is taken by a lamp or other contrivance. Internal consumption is represented by the vitamin D concentrates and preparations sold by drug stores or added to foods. This is the famous "sunshine vitamin."

The University of California Medical School and the San Francisco Department of Public Health have joined in a warning against too much sunshine, particularly in the concentrated form, because of the possibility of delayed harmful effects. The University's warning reads:

"Naturally this is not an argument for interfering with the treatment or prevention of rickets by vitamin D. But it is a plea to use some discretion in the amounts of vitamin D prescribed. Commercial enterprise is endeavoring to capitalize to the fullest in the current popular vogue for vitamin D. In addition to a sun-tan craze there are ballyhooed everywhere irradiated foodstuffs of all varieties, metabolized milks and even 'sunshine soaps.' But when on top of an unknown but probably quite adequate intake of vitamin D, especially in Sunny California, children are dosed with large amounts of vitamin D preparations by overanxious mothers, it is time for physicians to use care in prescribing the drug."

The warning of the San Francisco health department states:

"The director of public health wishes to record the fact that he disapproves of the present tendency of manufacturers to add measured quantities of vitamins to foods for commercial purposes. There is still considerable question, particularly in the instance of vitamin D, of what constitutes the proper dosage of vitamin concentrate in the various age groups. Any attempt to increase the sale of a food product, especially milk, by the addition of a substance whose value to the public health is still a controversial problem is indeed ill-advised. Even if it is granted that the actual danger in the consumption of vitamin D milk is relatively minimal, there is as yet no definite and accepted information on the limits or margins of clinical safety."

CHARLATANISM

Charlatanism is as old as mankind. If one were to go back to the time of the Greeks he would find descriptions of cults that are not very unlike some of those in vogue today. One of the characteristics of quackery, however, is that an individual fad does not last indefinitely. It comes into prominence, soon reaches a peak and then disappears. This also applies to various healing cults, no matter how honestly they may have been conceived.

In this connection it is interesting to read the following quotation from Palmer, the leader of chiropractic, which was printed in the September issue of Colorado Medicine. "Chiropractic is doomed. You have drifted so far from the basic principles of chiropratic that you have lost your identity and brought the basic science bill on your heads. Twenty-eight chiropractic schools have been closed . . . you cannot defeat the ends of science. The basic science bills are the buckshot which we deserve for trespassing. When chiropractors preach and practice and try to become physicians, then it is justifiable for the medical men to educate the chiropractor."—Neighborhood Health, New York City Department of Health.

SMOOTHING THE WAY

A Houston road-sign painter suggests the following sign for railroad crossings:

"Come ahead. You're unimportant."

"Try our engines. They satisfy."

"Don't stop. Nobody will miss you."

"Take a chance. You can get hit by a train only once."

—Houston Post.

MEDICAL ECONOMICS

H. M. Camp, M. D.
E. P. Coleman, M. D.
John R. Neal, M. D.
I. H. Neece, M. D.
W. M. Hartman, M. D.

Edited by the Committee on Medical Economics
of the
Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

R. K. Packard, M. D.
Ralph Peairs, M. D.
C. B. Reed, M. D.
C. S. Skaggs, M. D.
C. E. Wilkinson, M. D.

Address all letters and communications to the Chairman.

The number of articles in the lay press on the transactions of the House of Delegates of the American Medical Association at the annual meeting at Atlantic City is definite proof of the interest of the public in medical problems. While all of the comments are not in agreement with the decisions arrived at by the House of Delegates, it is encouraging to note that the mere mention of State Medicine arouses discussion and in the most instances criticism of any such plan. Whether this is the result of the educational program of organized medicine the past few years or a native dislike of governmental dictation is of relatively little importance compared with the opportunity it affords the medical profession to present its side of the problem. With the large amount of data available to prove that the method of conducting the practice of medicine is more efficient in the United States than in any country of Europe where the so-called State Medicine is in use, the medical profession is derelict in seizing a wonderful opportunity, if it fails to continue the discussion of medical problems.

Here in Illinois, a new problem has arisen. Namely, the conducting of Pre-Marital Examination in accordance with the newly enacted law, which became effective on July 1, 1937. Here is an experiment in Eugenics, the success of which depends entirely on the cooperation of the medical profession. In addition to being required by law, it is universally agreed that the results must be an improvement in the health of the next generation of children. All, we, as medical men must do, is examine carefully every applicant for a marriage license who presents himself to our office and be sure that he (or she) does not have a venereal disease. This will take a little time and expense on the part of the examiner. For his time and expense, he will be paid. And it is to be hoped that he will be careful to see that the fee charged for the examination not be so high that criticism and complaint on the part of the applicants will result. Sloppy, incomplete examination will be readily detected by the applicants and will result in the entire procedure falling into disrepute. Any man who is unwilling to make a complete examination at a reasonable fee, should refuse to make the examination. The medical profession has insisted that it is willing to cooperate with federal and state authorities to maintain and improve the health of the people of the United States. Here is a definite opportunity to prove that we are sincere in that statement. Any man who fails to make a complete, careful examination is unfair to the entire medical profession as well as himself and in addition is violating the laws of his country. The Legislature of the State of Illinois removed that portion of the bill which stated that the charge for his service should be two dollars at the suggestion of the medical profession. This should be appreciated and the appreciation evidenced by our cooperation in enforcing the law. Failure of cooperation by the medical profession will result in severe criticism.

The work of the Educational Committee for the current year has been expanded as a result of an increase in the expected revenue for the year. The program of lay education through the newspapers of the state has been increased, so that now every paper can receive articles on medical subjects of seasonal and current interest every week. If the members of the Illinois State Medical Society will contact their local editor and tell him of this service and try to get him to use the articles, they can increase the scope of this program many fold during the coming year. In addition it is to be hoped that articles will be prepared for use by the medical profession in addressing lay audiences throughout the state as to the superiority of the method of the United States in comparison with that of

Europe. The majority of men are too busy to prepare exhaustive papers on these subjects, but can and will present them to their local clubs, when the papers are made available to them. Further details and information as to the exact manner in which this will be done will be presented later.

The final report of the Legislative Committee of the Illinois State Medical Society is in the making. We hope that it will be completed and ready to be presented in this issue of THE JOURNAL. Every man in the state should read it carefully and know one of the things that the Illinois State Medical Society does for its members. The Chairman, Dr. John Neal, is doing a fine piece of work both for the medical profession and the people of Illinois. He watches for every attempt on the part of the cultists to obtain privileges inimical to the health of the people of Illinois. This requires great care for often these attempts are carefully tucked away in bills where they would be least expected. After discovering these attempts, he must convince the members of the legislature that they are not for the good of the people of Illinois. That he has been successful in this work is readily seen by an examination of the reports he has made the past few years. The final Legislative Bulletin of the Legislative Committee as furnished to the officers of the Component County Societies has just arrived. It is quite complete and exhaustive, but is well worth reading. It will follow this article in this column. After reading the same you will appreciate the work of this Committee made possible through funds from your annual dues to the Illinois State Medical Society.

E. S. Hamilton, M. D.,
Chairman of Committee on Medical Economics.

FINAL LEGISLATIVE BULLETIN

Was it deliberative, astute political maneuvering or merely the vagaries of discordant human nature at work? Whatever the cause, no General Assembly in Illinois ever wound up a regular session amid greater confusion than the one recently adjourned. After months of desultory activity which accomplished little except to fan the flames of factional bitterness between the two chambers, a congested calendar during the last three weeks of the session gave to the clever lobbyist of special interests a heyday that he dreams of, but seldom encounters in the stern reality of life. Anything might have happened and would have happened in the absence of unusual alertness on the part of forces devoted to the public interest. As many as 17 bills were voted simultaneously for passage on one occasion in the Senate. Proposals that had been defeated earlier were resurrected by methods familiar to the astute and inserted into bills that appeared headed for passage. In this way attempts were made to achieve in the confusion of a congested calendar and a fatigued legislative body what had not been possible when considered in open, deliberative session.

An example of this was H. B. 971, which as introduced and as passed by the House, merely amended and strengthened the legal phraseology of the Medical Practice Act as suggested by the Attorney General's department. It went to the Senate on June 22, advanced to second reading without reference to a committee, then went to third reading but was recalled on June 24 to second reading, reconsidered and advanced again to third reading. Then on Monday at the midnight hour, June 28, almost the eve of adjournment sine die, came the *coup de main*. It is best described in the language of the Senate Journal of June 28th which reads:

Recall

"On motion of Mr. Fribley, House Bill No. 971, a bill for 'An Act to amend section 16 of' 'An Act to revise the law in relation to the practice of the treatment of human ailments for the better protection of the public health and to prescribe penalties for the violation thereof," approved June 30, 1923, as amended, to add sections, etc. Was recalled from the order of third reading, to the order of second reading, for amendment. Mr. Fribley offered the following amendment to the bill, which was adopted.

Amendment No. 1

"Amend printed House Bill No. 971, in Senate, on page 2, section 2a, line 41, by striking the word 'Five' and inserting in lieu thereof the following:

'For the profession of osteopathy (in all its branches) five (5) persons, all of whom shall be graduates of reputable colleges of osteopathy and licensed in this State to practice osteopathy. For all other professions subject to the provisions of this Act, five' etc.

"And the question being, 'Shall the bill be ordered to a third reading as amended?' it was decided in the affirmative."

Energetic efforts on the part of the Society led to the defeat of this measure by an uncomfortably narrow margin. The vote, which had more "yeas" than "nays," was lost for lack of a constitutional majority. The Senate Journal of June 29th records the action on this proposition as follows:

"On motion of Mr. Loughran, House Bill No. 971, a bill for 'An Act to amend section 16 of An Act to revise the law in relation to the practice of the treatment of human ailments for the better protection of the public health and to prescribe penalties for the violation thereof,' approved June 30, 1923, as amended, to add sections 2-a, etc.

"Having been printed as received from the House of Representatives, together with the Senate amendments thereto adopted by the Senate, was taken up and read at large a third time.

"And the question being, 'Shall this bill pass, together with the Senate amendments thereto?' it was decided in the negative by the following vote: Yeas, 19; nays, 6. (26 votes necessary to pass.)

"The following voted in the affirmative: Messrs.

Barr	Fribley	Lohmann	Monroe
Baumrucker	Harper	Loughran	Thomas
Beckman	Karraker	Maypole	Ward
Broderick	Kiclminski	McDermott	Woodward
Burgess	Lee	Meyers	Yeas ..19

"The following voted in the negative: Messrs.

Baker	Graham	Smith	Nays....6
Crisenberry	Mendel	Tuttle	

"Whereupon, the President of the Senate declared that House Bill No. 971, in Senate, was lost."

NOTE: Those not voting were also opposed to the osteopathic amendment and should receive the thanks of the Society.

The amendment involved in this tricky maneuvering would have enacted into law the heart of the osteopathic registration bill, H. B. 194, including the right to do surgery, which was tabled in the House on June 24 after a checkered career that began with its introduction on February 16. It lay dormant in the Committee on Efficiency and Economy despite the many efforts to have it recommended favorably until May 17, when a motion to discharge the committee without action on the bill was lost. On June 3 the committee recommended that the bill *DO NOT PASS,* but in the confusion the House did not concur. When lost by tabling on June 24, the desperate maneuvering which ended as described above began.

While of outstanding importance, the proposals which would have established osteopaths and chiropractors as independently registered practitioners were by no means all of the bills of fundamental significance from a medical viewpoint that were introduced in the General Assembly. About 250 of the 1,614 measures offered for passage related to health, hygiene, sanitation and safety and more than 100 embraced medical aspects. Although most of these were either inimical to or of no particular public advantage, a few were constructive and desirable.

Most far reaching of these was the Saltiel Act, now a law, which requires premarital health examinations. As originally introduced, this bill would not only have introduced fee fixing, specifying a maximum of $2 for the medical examination, but made tests for venereal diseases optional, which would have defeated its purpose. As amended and passed it is fairly satisfactory except that no State Department is charged with enforcement.

Another constructive measure, which unfortunately lost in the eleventh hour House jam after having passed the Senate, was S. B. 339 that would have given physicians and hospitals for services rendered a lien on damage awards to persons accidentally injured.

A mania for licensing crafts of various kinds brought before the General Assembly over a score of bills on this subject. These related to skilled labor and technicians from plumbers to clockmakers and from barbers to x-ray operators. The latter was vigorously opposed because it would have made the technicians of one phase of medical practice, x-ray, equal before the law to the profession itself.

If S. B. 302 had been enacted, every physician and other professional men in the city of Chicago would be subject to an annual license tax variously rumored from ten to one hundred dollars.

Scores of bills concerning sanitation, hospitals and sanatoria, foods and drugs, safety, relief, workmen"s compensation, etc., involved medical aspects which required the closest study and often quick action on the part of your Legislative Committee in the interests of the public and high standards of medical practice.

Anti-Vivisection. H. B. 615 represented perhaps the most astute and clever legislative maneuver ever attempted in favor of anti-vivisection. Neither vivisection nor animal experimentation was mentioned in the bill. Both were subtly prohibited, however, by implication. The bill merely specified that municipalities shall provide for impounding dogs and cats and prescribed the exact ways in which unclaimed animals shall be disposed of. They could be sold to "proper persons" or "humanely destroyed."

(Members desiring to know the action taken on individuals bills can secure a list from the chairman.)

Miscellany. A score of bills relating to such subjects as absentee voting, adoption of children, crime and taxation would have a bearing upon the practice of medicine and on the medical profession in one way or another.

Summary. A casual scanning of this report will impress the reader with the multitude of divergent interests which bring pressure to bear upon the General Assembly. It will reveal the restless and unsettled state of affairs with respect to matters of social significance and general public interest. It discloses a groping of political leaders after some definite policy or program that no one has succeeded in bringing to light. This situation makes doubly important a constant alertness on the part of your Legislative Committee. It multiplies and makes more difficult its work. Nothing can be taken for granted. Every bill must be scanned and about one-fourth of all the proposals introduced must be studied and analyzed with meticulous care. In no other way can ill-advised, tricky and unsound legislation be opposed intelligently. No law which would lower the standards of medical practice, interfere seriously with research work, regiment the medical profession or operate to public disadvantage from the standpoint of good medical care has been enacted by the General Assembly. This was made effective largely through the splendid cooperation and assistance of the officers of the State and local societies and of physicians in the districts of several members of the General Assembly whose attitudes were vital. This office has copies of the above bills available without charge upon request. A number of proposed measures of importance to the medical profession were not introduced when it became known that the Illinois Medical Society would oppose them. Notably was the sug-

gestion that an annual registration fee be required of physicians and dentists.

Respectfully submitted,

Mather Pfeiffenberger, M. D.
M. J. Hubeny, M. D.
J. R. Neal, M. D., *Chairman*
Legislative Committee.

July 12, 1937.

Correspondence

NEW LAW—PHYSICIAL EXAMINATION

DEPARTMENT OF PUBLIC HEALTH
SPRINGFIELD

June 30, 1937.

To the Physicians of Illinois:

A newly enacted law, effective July 1, 1937, requires the physical examination for venereal diseases of all persons about to marry in Illinois. A copy of this law, which appears to be in complete accord with public sentiment, is enclosed herewith for your information and guidance.

Please observe that a blood test for syphilis and a microscopic test for gonorrhea are required of each party to a marriage contract and that these tests must be made free upon request of physicians by the State Department of Public Health or by municipal health departments.

The limited resources of the State Department of Public Health make it impossible to do in the State Diagnostic Laboratories all of the tests that will be necessary. Physicians in municipalities of over 30,000 are requested, therefore, to send specimens to local public laboratories. Where no public laboratory exists, city officials should make arrangements for handling these tests in an approved private laboratory.

Kindly observe also that physicians must provide applicants with a signed certificate to which must be attached copies of the laboratory reports of the tests. In submitting specimens to the laboratory for compliance with this law, it will be important, therefore, to give the *name* of the applicant rather than key number. Request for duplicate copies of reports is necessary if a copy is desired for your files.

The success of this venture aimed at the control of malial syphilis and gonorrhea, especially congenital infections, rests primarily on the medical profession. Some 150,000 young people will be brought annually to physicians. Weeding out the luetic will help greatly in preventing the birth of infected babies, of which there are now about 1,000 annually.

State regulations require the reporting and treatment of each patient detected. Patients are required to remain under treatment until dismissed by physicians. All necessary drugs for the adequate treatment of luetics are available free from the State Department of Public Health which will provide also assistance with respect to delinquent patients and the tracing of sources of infection. From the Department you may obtain mailing containers for use in submitting specimens for laboratory examination. In Chicago and a few other cities, these facilities are available and should be obtained from the city health departments.

Let me urge you to take full advantage of the law in giving the applicants a thorough physical examination, seeking no less carefully for symptoms of tuberculosis and other serious defects than for venereal infections. The situation gives the medical profession an extraordinary opportunity in preventive medicine and in cultivating public confidence in the profession.

I hope that you will feel the utmost freedom in calling upon this office for any assistance that it may be able to render in connection not only with the functioning of the new law but with any public health problem.

Very truly yours,

Frank J. Jirka, M. D.,
State Health Director.

PRE-MARITAL EXAMINATION

The New Illinois Law and Its Implications

Frank J. Jirka, M. D., State Health Director

Public interest has been aroused in the venereal disease situation and in the possibilities of controlling and preventing both syphilis and gonorrhea. In disputable evidence that both diseases are widespread, that many people, especially women, are innocently infected through marital relations, that about one in each one hundred babies born is congenitally infected with syphilis, that large numbers are exposed at birth to gonnorrheal infection of the eyes which may cause blindness and that syphilis is responsible for a considerable proportion of insanity as well as numerous other ills has led to an insistent public demand for a comprehensive, sound program of control, with respect to syphilis particularly, the public has been told truthfully that both cure and prevention are possible at reasonable expense through the intelligent application of available knowledge.

The most important and far reaching public expression on this subject to date in Illinois was the enactment of a law, effective July 1, 1937, which requires an examination for venereal diseases of persons about to

marry. The principal purpose of this law is to prevent the innocent infection of marital partners and to prevent the birth of congenitally infected babies. It is estimated that in recent years about 1,000 babies congenitally infected with syphilis were born annually in Illinois.

The law requires that both parties to a marriage contract be examined by a regularly licensed physician within fifteen days prior to the issuance of a license to marry. A microscopic test for gonnorhea and a blood test for syphilis are required of each as a part of the examination. A certificate (to which must be attached copies of the laboratory reports) from the examining physician of each of the parties concerned must be presented to the county clerk before he can legally issue a license to marry.

To be of value the blood and microscopic tests must be made in reliable laboratories equipped and staffed to do that kind of work. Inaccurate laboratory examination which yields false results, either positive or negative, will not only defeat the purpose of the law but may produce disaster. The mental anguish likely to be created by a falsely positive report may virtually ruin the life of the person concerned. A falsely negative report may lead to the infection of a marital partner and the birth of infected babies.

The law requires the State Department of Public Health and city departments of health to make the required tests free of cost upon request of physicians. Tests made in the public laboratories may be accepted as reliable.

Only those private laboratories approved by the State Department of Public Health should be patronized in connection with these tests.

The treatment of infected persons discovered is of great importance in the control of venereal diseases. Probably not more than one in each one hundred males and perhaps not more than one in each three or four hundred females examined as a prerequisite to marriage will be found infected with syphilis. Appropriate and adequate treatment of those that are found, however, cannot be over emphasized. The State Department of Public Health furnishes free the necessary drugs for the treatment of syphilitic patients regardless of their financial ability. Facilities may be provided for the free treatment of the poor.

All discovered cases should be reported promptly. This is required by State rules and is essential to controlling venereal diseases.

The law requiring the physical examination of persons about to marry is reproduced below. While it aims primarily at the control of venereal diseases, it offers a splendid opportunity to go much farther. The physician should take advantage of the opportunity and the applicant should insist upon his doing so, to search for symptoms of other serious diseases, particularly tuberculosis. He should be prepared likewise to give sound advice concerning the multitude of problems that arise through marital relations.

THE LAW

An Act to add section 6a to "An Act to revise the law in relation to marriages," approved February 27, 1874, as amended.

Be it enacted by the People of the State of Illinois, represented in the General Assembly:

Section 1. Section 6a is added to "An Act to revise the law in relation to marriages" approved February 27, 1874, as amended, the added section to read as follows:

Section 6a. All persons desiring to marry shall within fifteen (15) days prior to the issuance of a license to marry, be examined by any duly licensed physician as to the existence or non-existence in such person of any venereal disease, and it shall be unlawful for the county clerk of any county to issue a license to marry to any person who fails to present for filing with such county clerk a certificate setting forth that such person is free from venereal diseases as nearly as can be determined by a thorough physical examination, and attached thereto laboratory reports of microscopical examination for the gonococcus for gonorrhea and the blood Wassermann test or Kahn test for syphilis. Such laboratory examination shall upon the request of any physican in the State be made free of charge by either the State Department of Public Health or the Health Department of cities, villages and incorporated towns maintaining Health Departments. The certificate required herein shall be filed with the application for license to marry and shall read as follows, to-wit:

I, ..., being a physician, legally li-
(Name of physician)
censed to practice in the State of ....., my credentials being filed in the office of ..... in the City of ..... County of ..... State of ..... do certify that I did on the ..... day of ..... 19... make a thorough examination of ..... and considered the result of a microscopical examination for gonococci and a Wassermann or Kahn test for Syphilis, which was made at my request. (Strike out the test or tests which were not made) and believe ..... to be free from all venereal diseases.

.....
(Signature of physician)

Any county clerk who shall unlawfully issue a license to marry to any person who fails to present for filing the certificate provided for in this Act or who shall refuse to issue a license to marry to any person legally capable of contracting a marriage who presents for filing the certificate provided for in this Act, or any physician who shall knowingly and wilfully make any false statement in the certificate, or any party or parties having knowledge of any matter relating or pertaining to the examination of any applicant for license to marry, who shall disclose the same, or any portion thereof, except as may be required by law, shall upon proof thereof be punished by a fine of not less than $100.00 nor more than $500.00 for each and every offense.

Any person who shall obtain any license to marry contrary to the provisions of this section shall, upon conviction thereof, be punished by a fine of not less than $100.00 or by imprisonment in the county jail for not less than three (3) months or by both such fine and imprisonment.

Any license to marry issued hereunder shall be void thirty (30) days after the date thereof.

Approved June 23, 1937, Henry Horner, Governor.

Louis E. Lewis,
Speaker, House of Representatives.

John Stelle,
President of the Senate.

INSTRUCTIONS FROM THE STATE DEPARTMENT OF HEALTH

July 17, 1937.

To the Editor: In view of the extraordinarily heavy demands on the diagnostic laboratory facilities of the State Department of Public Health that have come about as a result of the Saltiel hygienic marriage law, it will be helpful to all concerned if physicians, when submitting specimens in compliance with the law, will be guided by suggestions as follows:

1. Do not enclose smear-specimens for microscopic examination in the same container or shipping carton with blood specimens for the Kahn or Wassermann. When enclosed together the slides are frequently broken upon arrival at the laboratory and in any event it causes delay because of an upset in laboratory routine. Smear-slides enclosed with blood specimens are apt to be misplaced in the laboratory and the identification lost.

2. Do not ask for the complement fixation test for gonorrhea on blood specimens. The law requires only a microscopic test for gonorrhea. The laboratory facilities are too limited to undertake the complement fixation test on all samples of blood submitted.

3. Insert on the form which acompanies specimens the full name of each person who wishes a report to be attached to an application for marriage license. The name used should be identical in every respect with the name to be inserted on the application for marriage license and on the physician's certificate. County clerks have been advised that the names on all of the credentials should be identical. To avoid errors the names should be typed or printed.

4. Make a separate certificate for each of the two people who propose to marry and attach the two laboratory reports to each. County clerks have reported that physicians have certified to the examination of both applicants on one certificate.

5. Ask for reports in duplicate if copies are desired for the physician's files.

6. Do not submit specimens identified by key numbers or other symbols if reports are to be used to conform with the Saltiel law.

7. Insert *"For Marriage License"* on forms when specimens are submitted for that purpose. This will be helpful in appraising the value and volume of work done in compliance with the law.

8. Request applicants to allow three or four days for obtaining the laboratory reports.

I believe that compliance on the part of the medical profession with these suggestions will greatly facilitate the laboratory services involved and I shall appreciate your giving space to this communication in an early issue of the JOURNAL.

Very cordially yours,

Frank J. Jirka, M. D.,
Director of Public Health.

PHARMACOPOEIA OF THE UNITED STATES OF AMERICA 1930-1940

Philadelphia, Pa.

To the Editor: The Pharmacopœial Convention of 1930 approved the following Resolution which had been passed, in substantially the same form, by many preceding U. S. P. Conventions:

"Supplements—It is recommended that the Commitee of Revision be authorized to prepare supplements to the Pharmacopœia, or lists of admissions or changes at any time they may deem such action desirable."

(U. S. P. XI, page lxvi)

Under this authorization the U. S. P. Committee of Revision and Board of Trustees have prepared and published the First Supplement to the U. S. P. XI.

This First Supplement has just been released and will became official on December 1, 1937. It is a booklet of about 100 pages in a substantial binding and may be obtained from the Mack Printing Company, Easton, Pa., from your wholesale druggist, or from any other distributor of the U. S. P., at $1.00 per copy, postpaid. In this supplement, all of the texts revised to June 1, 1937, are reprinted in full so that there can be no misunderstanding of the authorized changes.

This Supplement was prepared under the same careful procedure followed for the original text of the Pharmacopœia. Each proposed change was carefully investigated by the appropriate Sub-Committee and submitted for the consideration of the Revision Committee. The tentative

text was then given wide distribution to solicit criticism and suggestions. A hearing, conducted by members of the Executive Committee, was later arranged and announced, and anyone interested was invited to be present. Following the hearing the members of the Executive Committee held a conference with the officials of the Food and Drug Administration at Washington and then decided upon the text, which was then submitted in full to the members of the Committee of Revision for discussion and approval. Finally the Board of Trustees decided the date of issue for the Supplement, also the date when it is to become officially a part of the U. S. P. XI, and the price for which it is to be sold.

American pharmacy may justly be proud of the part it has played for almost a century in cooperation with medicine, in the decennial revisions of the U. S. Pharmacopœia. The issuance of the First Supplement to the Eleventh Revision inaugurates an advanced program. This makes possible the prompt revision of tests or assays whenever it is found necessary and even the recognition of added therapeutically important substances, if new conditions make such action desirable. This plan will make the Pharmacopœia more responsive to progress, more serviceable as a technical guide to the health professions, and more dependable as an authority for drugs and medicines under the Federal and State pure food and drugs acts.

The fullest support should, therefore, be accorded to this new and forward looking policy by all who are interested in the Pharmacopœia. Pharmacists and all other users of the U. S. P. should promptly supply themselves with copies of the First Supplement to the Eleventh Revision.

E. Fullerton Cook,
Chairman U. S. P. XI Committee of Revision,
43rd Street and Woodland Ave.

PROHIBITIVE OBJECTIONS TO THE USE OF PROPRIETARY MIXTURES OF MEDICINES

Marshall, Ill., July 19, 1937.

To the Editor:

Doctors must have a language, a vocabulary which is understood among themselves, or they cannot work together in the treatment of sick or injured people. The employment of a mixture of two to six medicines some of the ingredients of which are little or not at all understood and the reaction of the one drug on another less understood, the concoction is wholly unreliable for internal or external use. The physician or surgeon using such combinations cannot know what effect if any to expect and his colleagues cannot learn from his observations nor can he profit by the mistakes of others and lone experience is a costly school to learn in, in any calling.

We have standard medicines prepared in recognized standard ways and strengths (U. S. P. and N. F.) and when these are given or applied locally we all know or can look up and learn something about the effects to expect and when two or three doctors are on the same case they can talk the same language and co-operate intelligently and in reporting the case, others may benefit by the success or failure of such medicine in such a case.

Two members of my family with severe burns have the past three weeks renewed the above observations to me very forcefully. One doctor wanted to use (and has used) Butesin Uicrate Ointment "containing 1% Butesin Picrate," an unknown per cent. of tannic acid and a little other acids, etc., another doctor in a distant hospital wanted to use another equally complex ointment and I wanted to use the tannic acid solution treatment sprayed on. No one of us would know how to carry out the line of treatment suggested by the other, nor even to talk about it not having had experience with that particular mixture. I did not consult other doctors for the reason that I feared more complex mixtures would be suggested and more doubt and uncertainty created in my mind as to the proper treatment for such patients. A standard treatment can never be established for burns nor any disease while one doctor uses a shot-gun remedy and his colleagues use another double barrel shot-gun remedy.

The prohibitive objections to the use of proprietary mixtures of medicine are:

1. It is impossible for any man to know or in any way to learn the effects of a mixture; he will do well to learn well the effects of one medicine.

2. Doctors must have a mutually intelligible language (a vocabulary) to use in consultations and reporting.

L. J. Weir, M. D.

FIFTH INTERNATIONAL CONGRESS OF RADIOLOGY

Simultaneous projection of pictures and text in three languages will be an unusual feature of a gathering of leading physicians and physicists of the world in Chicago this September, according to Dr. Arthur C. Christie, Washington, D. C., president of the Fifth International Congress of Radiology. Whatever the speaker's language, translation of his paper will be thrown on the screens in English, French and German, so that practically everyone attending the Congress will be able to understand it, he said.

"Most of the European scientists are at least bilingual," explained Dr. Christie, "but many United States physicians who will attend are not sufficiently conversant with more than English to comprehend many of the papers which will be read. By translating every speech into English, French and German, we believe that nearly everyone will receive the benefit of understanding the more than 250 speakers who will read scientific papers during the five-day meeting here September 13 to 17."

It will be the first International Congress ever held in the United States, Dr. Christie added, and will mark the 42nd year since Dr. William Conrad Roentgen discovered X-rays, and the 39th year since the Curies discovered radium. The vast progress made in development of the medical and other uses of these two boons to mankind will be portrayed during the Congress, not only through the scientific papers and discussions, but in actual graphic exhibits.

The Congress will be held here at the Palmer House, Chicago, and more than 1,000 square feet of floor space will be devoted to an extensive scientific exhibit to be arranged by scores of hospitals and research laboratories throughout the world. Over 20,000 square feet will be devoted to commercial exhibits, showing the latest equipment manufactured by leaders in the field, ranging from X-ray negatives up to models of million volt therapy apparatus.

A "short-term" medical school will be conducted during the Congress, said Dr. Christie. Eminent leaders in the field of Radiology will conduct short courses during the Congress for the benefit of delegates who will attend the Congress from all parts of the world. All of the United States radiological societies, including the Radiological Society of North America, American Roentgen Ray Society, American College of Radiology and American Radium Society, will hold their joint annual conventions during the Congress and will elect officers here. At least 500 foreign delegates are expected from 30 different countries, and over 2,000 United States physicians will attend. Physicians in other branches of medicine may attend the Congress, according to Dr. B. H. Orndoff, 561 N. Clark Street, general secretary.

Included among the outstanding scientists of the world who will be present at the meeting are: Dr. Gosta Forssell of Stockholm; Dr. Antoine Beclere of Paris; Dr. Tamotsu Watanabe of Osaka, Japan; Dr. H. Tellez-Plasencia of Santander, Spain; Dr. Russell Reynolds of London; Dr. William D. Coolidge of Schenectady; Dr. C. Thurstan Holland of Liverpool; Dr. George B. Pfahler of Philadelphia; Dr. Francis Carter Wood, New York; Dr. James Ewing, New York; and Dr. William J. Mayo of Rochester, and many others.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next written examination and review of case histories of Group B applicants by the American Board of Obstetrics and Gynecology will be held in various cities in the United States and Canada on Saturday, November 6, 1937.

The next general examination for all candidates (Groups A and B) will be held in San Francisco, Cal., on June 13 and 14, 1938, immediately prior to the American Medical Association meeting.

Application blanks and booklets of information may be obtained from Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pennsylvania. Applications for these examinations must be filed in the Secretary's office not later than sixty days prior to the scheduled dates of examination.

AMERICAN CONGRESS OF PHYSICAL THERAPY

Cincinnati and its medical groups will be host to the American Congress of Physical Therapy which meets in the Ohio city, September 20 to 24.

Never before has there been such interest and enthusiasm for an annual session as is being displayed this year for the September meeting. Plans are being made for a very large attendance which will be comfortably cared for at the Netherland Plaza Hotel.

Of special interest is the scientific program with its diversified symposia, clinical conference groups, demonstration clinics and sectional meetings. Every specialty in medicine and surgery will be adequately represented. The scientific exhibits will be extensive and varied and should comprise an important part of the entire session. The technical exhibits will prove profitable in information to those who seek familiarity with the newer apparatus and equipment in physical therapy.

From every standpoint the 16th annual session offers an intensive "refresher" course in which will be embraced subjects like short wave diathermy, ultraviolet radiation, low voltage currents, exercise, massage, etc. Featured symposia include fractures, vascular diseases, poliomyelitis, fever therapy. There will be no registration fee but the meeting is open only to duly licensed physicians and properly vouched for technical assistants. Plan now to attend the Congress session in September.

THE AMERICAN BOARD OF OTOLARYNGOLOGY

An examination was held in Philadelphia, June 7th and 8th, prior to the meeting of the American Medical Association. Ninety-four candidates were examined—of this number seventy-two were certified.

An examination will be held in Chicago, October 8th and 9th, prior to the meeting of the American Academy of Ophthalmology and Otolaryngology.

Prospective applicants for certificate should secure application blanks from the Secretary, Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, Nebraska.

H. P. Mosher, M. D.,
President.
W. P. Wherry, M. D.,
Secretary.

MISSISSIPPI VALLEY MEDICAL SOCIETY "ANNUAL AWARDS"

The Mississippi Valley Medical Society (Headquarters, Quincy, Illinois), has recently established a number of annual awards in an effort to expand the influence of the organization. These are as follows:

1. To encourage recent medical graduates to promptly become interested in post-graduate study, the Society will award each year five free memberships to recent graduates from each of the recognized medical schools of Illinois, Missouri and Iowa. These memberships will be good for two years and will be determined by the deans of the respective schools on the basis of school scholarship, it being required that the appointees be licensed to practice medicine in Illinois, Missouri or Iowa.

2. A silver and a bronze medal will be awarded each year for the most interesting scientific exhibits at the annual meeting.

3. A cash prize of $100.00 and gold medal will be awarded annually for the most interesting contribution to be submitted on a subject determined by the "Annual Awards Committee." This contribution must be of interest to the physician in general practice and the winner will be invited to present it before the Society at its annual meeting.

4. The Society also has under consideration the annual award of a gold medal to one of its members (?) for distinguished services rendered the profession. This will be determined by the Board of Directors at its next meeting (September).

The matter of annual awards will be in charge of a Secret Committee of five Society members appointed by the President.

BUREAU CRITICIZES OFFER OF ASSOCIATED HOSPITAL SERVICE OF ILLINOIS, INC.

Bureau investigation of the services being offered to members of the public by the Associated Hospital Service of Illinois, Inc., has disclosed a situation which is outlined in the following letter sent by the Bureau to that corporation under date of July 9, 1937:

The Associated Hospital Service of Illinois, Inc.,
188 West Randolph Street, Chicago, Ill.

Gentlemen:

As you know, the Chicago Better Business Bureau is maintained by the business interests of the City of Chicago for the purpose of eliminating false, deceptive and misleading advertising and business practices resulting therefrom, and answering gratis inquiries concerning business firms and propositions.

The selling campaign of the Associated Hospital Service of Illinois, Inc., is bringing to this office numerous requests for information about your organization. Many of these inquirers are interested in knowing in exactly what hospitals membership cards or subscriber's cards of the Associated Hospital Service of Illinois, Inc., will be accepted as establishing credit for hospitalization.

This office has received a copy of the letter addressed to the Associated Hospital Service of Illinois, Inc., by Rev. John W. Barrett, Director of Catholic Hospitals in the Archdiocese of Chicago, under date of May 28, 1937, advising your corporation that its identification cards or membership cards will not be recognized or accepted as establishing any credit whatsoever in any Catholic hospital in the Archdiocese of Chicago. It is our understanding that this affects sixteen hospitals in the Chicago area.

In addition to these hospitals, the Chicago Better Business Bureau has been advised by thirty-six other hospitals in this area that identification cards or membership cards of subscribers to the Associated Hospitals Service of Illinois will not be recognized as establishing credit in these institutions.

In view of this situation, it is the opinion of the Chicago Better Business Bureau that the following paragraph appearing in the literature of the Associated Hospital Service of Illinois, Inc., is misleading and deceptive and should be omitted or corrected to properly reflect the exact conditions under which subscribers to or policyholders of the corporation will be accepted for hospitalization in institutions other than those affiliated with the Associated Hospital Service of Illinois, Inc.:

"ANY HOSPITAL MAY BE SELECTED

"Subscribers are not merely entitled to hospitalization in hospitals associated with the ASSOCIATED HOSPITAL SERVICE OF ILLINOIS, INC., but may obtain such hospitalization at any hospital in the City of Chicago or any other place in the United States. . . ."

We believe that when you have considered this matter you will agree that the portion of your sales literature quoted above is inaccurate and that you should take immediate steps to correct it, toward the end of presenting your services accurately to the public.

We shall appreciate it if you will acknowledge receipt of this letter and advise us whether the suggested correction has been or will be made.

Sincerely yours,

CHICAGO BETTER BUSINESS BUREAU
By Kenneth Barnard, General Manager.

Reprinted from The Report of the Chicago Better Business Bureau—July 15th, 1937.

THE INSTITUTE OF MEDICINE OF CHICAGO

The Joseph A. Capps Prize

(Founded by Edwin R. LeCount, Benefactor)

The Institute of Medicine of Chicago offers a prize of $500 for the most meritorious investigation in medi-

cine or in the specialties of medicine. The investigation may be also in the fundamental sciences, provided the work has a definite bearing on some medical problem.

Eligibility—Competition is open to graduates of Chicago medical schools who completed their internship in 1935 or who completed one year of laboratory work in 1936.

Time Limit—Manuscripts must be submitted to the Secretary of The Institute of Medicine of Chicago, 86 East Randolph Street, Chicago, and later than December 31, 1937.

The winner of the prize will be expected to present the results of his investigation before the Institute at some meeting in 1938, the time to be designated later.

If no paper presented is deemed worthy of the prize, the award may be withheld at the discretion of the Board of Governors.

WHAT IS GOOD TO EAT?

Who originated the idea that those things you like are bad for you and those things you do not like are just what you need? Appetite surely must have been developed through the ages of evolution as a guide by which the various animals were able to choose their food. It must have served those animals well because otherwise they would have become extinct in the tremendous struggle for existence. Surely, the animals which did not know what was good for them to eat are no longer with us. Surely, the fact that man is here and that he is on the top of the heap is proof enough that his appetite and instincts having to do with food must have been reliable for the most part at least.

Now come a lot of people who would have us believe that these instincts are not at all to be trusted. They would have us eat a great many dishes which we detest simply because these dishes contain certain vitamins, minerals or proteins. They would have us refrain from foods which we desire most heartily because they say they are too fattening, are lacking in something or other, or possibly are hard to digest. We are willing to grant that times have changed and that there is need that some of the instincts to be held in check, but in the main we still insist ?

—Thurman B. Rice, M. D.

ALL IN FAVOR SAY "AYE"

Judge Rainey down in Oklahoma City told me that the following incident caused uproarious laughter in his court.

An Italian who was intelligent but knew little English had applied for American citizenship, and in trying to wrestle through the questions put to him by the clerk became a good deal excited and discouraged. At the question "Do you believe in polygamy?" he threw up his hands altogether.

"I no understan'!" he said. "I no understan' noting!"

"Well," the clerk said, "I'll put it this way: Do you believe in plural marriage?"

That was still worse. "No capisco. I no understan' noting. I no Americano!" the Italian shouted, and picked up his hat as though to walk out.

But Judge Rainey leaned forward helpfully. "Let me ask this question: Benito, what do you think of the idea of having two or three, perhaps four wives?"

Benito's face relaxed in a comprehending smile. "I tink pretty good, Judge. What you tink?"

—Max Eastman in The Yale Review.

COMMON ERRORS

You sometimes say "For you and I"
Of which you should be very shy.
'Tis right to say "For you and me."
Your platform speech keep error-free.
Again you say "Let you and I"
When you should say "Let you and me."
"Who did you see?" too is not right.
"Whom did you see?" is perfect quite.
"John and Joses makes a pair,"
"Make" is the word you should use there.
In your prayers and petitions you use the word "might"
When "may" is the word which would always be right.
These are but samples of errors not told
Which a friend could name if he dared be so bold.
That you know better we all are quite sure—
Then why not speak in language more pure,
And cease to discredit your good education
In a way that quite baffles all explanation,
And thus put a stop to the adverse reflections
Of boys, girls and others who voice these objections?

—Exchange.

OUR FRIENDS WHO STAY AT HOME

"The first, and in some respects, the most important function is—to lay a foundation for that unity and friendship which is essential to the dignity and usefulness of the profession . . . The man who knows it all and gets nothing from the Society, reminds one of the little dried up miniature of humanity, the prematurely senile infant, whose tabetic marasmus has added old age to infancy . . . Why should he go to the Society? . . . It is a waste of time, he says, and he feels better at home, and perhaps that is the best place for a man who has reached the stage of intellectual stagnation. . . ."—William Osler.

IT LOOKED SERIOUS

Returning from her honeymoon, college graduate Marian Wardlaw brought her husband for a skin eruption. "This," I informed her, "is called contact dermatitis." "Contact," she repeated, and waited for me to continue. "It's an allergic condition," I tried to clarify myself. "Allergy is an abnormal response to a normal stimulus." She bit her lip nervously. "So," she meditated. "Does that mean," she stammered, "that we may have to part?"—Roche Review.

Original Articles

ABDOMINAL VISCERAL PAIN

A Physiological and Clinical Consideration

VIRGIL E. SIMPSON, M. D.
LOUISVILLE, KY.

The Universality of Pain. The fact that in all languages we find a word which means pain is an evidence of the universality of this experience. Further, we find that the word is practically the same in all languages which have a common origin. Most modern languages probably derive their word pain from the Latin pœna, which means punishment, and this in turn, no doubt, originated in the Greek word which also meant a punishment or a penalty.

When the various organs of the body are functioning in a harmonious action, there is a sense of wellbeing; that is health. When there is a discordant action of one or more of these organs it is announced by some disagreeable sensation; that is disease. This disagreeable sensation is usually the first sign of a dysfunction and it may vary from pain of a severe type to the very slight impairment of the sense of wellbeing. The pain may vary in character as well as in degree. This pain sense implies an involvement of the nervous system and this concerns the possession of consciousness which is necessary for a perception of subjective sensation.

Pain is the keystone in a diagnostic arch and usually figures prominently in disturbances that are attributable to organic disease. It is merely one of a great number of disturbances that are simply functional. The nervous background is of tremendous importance in evaluating pain. The highly nervous, highly sensitive individual will complain of pain serious enough to suggest perforation, whereas a more stolid patient, who actually has a lesion, may never have complained of pain.

In about 90% of all diseases pain is a prominent symptom some time during their course. The three properties of a pain sensation may be described as quality, intensity and duration. Pain may be defined as a distinctly mental interpretation. It is hardly a sensation, but rather the result of the perception and interpretation of the sensation by the mind. According to Marshall, pleasures and pains are but differential qualities of all mental states. Behan objects to this and believes that they are but interpretations of sensations which are perceived as arising in the periphery.

Definition of Pain. It is exceedingly difficult to define pain, for stimuli that are painful to one individual may be merely unpleasant to another and the degree of pain may vary in the same individual under different physical and mental states. It cannot be defined in terms of intensity of stimulus, because what is painful to the cornea of the eye or a tooth pulp would be interpreted as only a light touch when applied to the back. What is painful to the skin may not be felt at all when affecting a visceral organ.

Sherrington defines pain as an imperative protective reflex. Meade defines pain as an indication of interference with the power of nutrition of the organism. Gilman thinks of pain as having its source in the violation of nervous habitude. Meynhert says that any obstacle to the effective working of the psychic function is a cause of pain. Mezex says that pain is attention with difficulty. Bianchi defines it as an interference or obstruction to the play of internal emotion or exteriorization in response to the needs of life. Kulpe says that the characteristic feature of pain is the feeling of the disagreeable. Meyers calls pain a beneficient reaction through the nervous system of altered structure or disordered function against destructive forces. Dunglison could be no more definite in defining pain than to say that it was a disagreeable sensation which scarcely admits of definition. Quain was no more definite when he said that pain is the representation in consciousness of a change produced in a nerve center by special mode of excitation. Sudduth speaks of pain as a mental state, an element of consciousness, viewed with a perception of an injury to the body or to the feelings. Schopenhauer, the old pessimist, says that pains are positive and pleasures are negative experiences; that pleasures are due to the absence of pain and the intensity of one is often in proportion to the other feeling that preceded it. Spinoza speaks of pain as an emotion whereby the body's power of activity is diminished or checked. Cicero described pain as a disagreeable movement in the body. Gambuus called it a disagreeable sensation which the mind would

Oration in Medicine, read before the Illinois Medical Society at Peoria, Illinois, May 18, 1937.

rather not experience. Sauvage spoke of it as a disagreeable sensation originating from any lesion in the nerve fibres. Valentine said that too great an intensity of stimuli may cause pain. Erb held that any increase of sensory stimuli was capable of producing pain as soon as it attained a certain degree of intensity.

It will be concluded from the above definitions that there are two ideas underlying definitions of pain, one having to do with the physical and the other with the metaphysical side. We have, therefore, a group of observers on the one hand that claim that true visceral pain does not exist, and on the other those who assert that it does. If it be conceded that the viscera have a pain mechanism, the question arises as to why they should be so much less sensitive than somatic tissue. It is thought that the answer to this is found in the statement that it is the type of stimulus that is more important than the intensity. This is in accord with the idea that pain is an adaptive function, evolved from the primitive nervous system to protect the individual from harm. Hence, according to this conception, it would seem reasonable to believe that sensibility to pain would be best developed for the types of injury which threaten naturally the functional integrity of visceral organs. Hence, in the case of a hollow viscus, over-distention or obstruction to its lumen would threaten its normal function, and it would be anticipated that muscular effort to expel the obstructing object or overcome the distention might give rise to adequate stimuli, resulting in visceral pain. Hertz has demonstrated with reasonable certainty that distension of a hollow viscus was an adequate stimulus for pain. Ryle added to Hertz' concept by emphasizing that degrees of contraction normal in their nature was also an adequate stimulus. Payne and Poulton have showed that when a smooth muscle tube is distended, a peristaltic contraction wave may actually relieve the pain if it shortens the muscle length and diminishes the tension acting on the stretched nerve ending in the wall. In all of these instances it will be noted that the adequate stimulus was an abnormal degree of tension acting upon afferent nerve endings. It is now quite generally conceded that tension acting on a smooth muscle may give rise to pain.

May there not be other mechanisms whereby visceral phenomena may express themselves at the periphery and produce changes that give rise to pain other than the explanation Mackenzie offered as to the overflow of impulses to somatic neurons in the spinal cord? As a summary, it may be said that pain may arise from visceral disease when the stimulus is adequate. In most instances adequate stimulus appears to be an abnormal degree of tension acting on a visceral afferent nerve ending. Pain of visceral origin resembles thalamic pain to a remarkable degree. Visceral pain is frequently associated with referred phenomena, pain, hyperalgesia and muscle spasm. When these appear at a distance from the site of the viscus they are probably due to viscero-motor reflexes involving the peripheral blood vessels and skeletal muscles. When they appear close to the site of the inflamed viscus, there may be in addition to the visceral reflex phenomenon direct somatic reflexes secondary to an involvement of the parietal peritoneum by the inflammation.

Another thing that has been overlooked, perhaps, in the argument is that the visceral organs that under normal conditions do not produce pain, will when inflamed give rise to pain phenomenon.

Pain is part of an elaborate though primitive protective mechanism against noxious agents and as such is largely a thalamic sensation.

In literature, pain has been as variously defined as by scientists. Pain is the outcome of sin, said old Buddha, while Tupper thought it added rest unto pleasure and taught the luxury of health. Bentham considered Nature as having put mankind under two sovereign masters, pain and pleasure, and that it was for them to point out what we ought to do, as well as to determine what we shall do. Bulwer said that the refinement which brings us new pleasures exposes us to new pains. Bryant thought of it as a transient guest, for pain dies quickly and lets her weary prisoner go; the fiercest agonies have shortest reign. It is the deepest thing in our natures, said Hallem, and union through pain and suffering always seems more real and holy than any other.

Is There a Center for Pain? Many physiologists today hold that the pain center is located in the optic thalamus. Unlike other sensations, however, there are no special means for pain production, and another peculiar feature about it is that it may be aroused by the most varied stimuli.

Sensation, on the other hand, is a thing that is aroused by well defined and limited stimuli and which must be exerted on a special sensory perceptive apparatus, and these sensations themselves may be both painful and pleasant. Therefore it would seem that pain and pleasure are but attributes to sensation and cannot be kept by themselves as separate sensations. As an illustration, taste, smell, hearing and sight, with sensations to heat and cold, may all be painfully as well as pleasureably received.

It is now believed that the thalamus is the center of awareness, that it is concerned with the protective, affective and non-discriminative elements of sensation, that here are perceived the sensations of contact, of pain, of heat and of cold. It further appears that the response of the thalamus to impulses exhibits the all-or-none character. It has long been appreciated that sensation subserves two purposes, (a) to protect, (b) to learn. In the face of this conception, it would seem that while the thalamus may effectively act as a protective mechanism, its manner of response seriously interferes with the learning process. Fortunately, this learning process function is subserved by the cortex of the brain. The sensory cortex is essential for accurate localization, for fine discrimination of touch, for recognition of spatial relations and for posture. It is connected with storehouses of memory that enable the individual to estimate the intensity and meaning of the individual sensations in the light of past experience. It would seem then that the cortex inhibits the vivid and explosive thalamic responses so that the individual can develop powers of discrimination and may learn to evaluate light touch, ranges of temperature, localization and spatial recognition, thus enabling him to build up a store of experience and thus become capable to initiating responses that may be termed intelligent.

The Purpose of Pain Sense. Viewed from a developmental standpoint, the digestive cavity was first evolved in animal life, then the circulatory system appeared, and to this was added the respiratory system. To coordinate these a nervous communication was developed. At first these were encased in an insensitive and unyielding outer covering. Later this became modified in such a manner as to provide protection and movement as well. Protection was matured by rendering this outer covering sensitive, uniting it with muscles by means of a reflex nervous system. Pain stimuli excite consciousness of the muscles or stimulating contractions, so that the organism is removed from the offending neighborhood, or there is interposed between the offending agent and the viscera some resistant material such as a muscle. Then came the hooking up of the nerves of the viscera with the sensory motor nerves of the cerebrospinal system, so that the muscles of the external body could react to a stimulus from the viscera. From this point of view the primitive nervous system corresponds with our present-day sympathetic, while the more latterly developed sensori-motor system corresponds to the cerebrospinal nervous system. Hence we find that pain is elicited only by stimulation of structures that are supplied by the cerebrospinal nervous system. Thus when pain arises in the viscera, it does so by calling into play the cerebrospinal system of sensory nerves, and the pain is then referred to regions supplied by that system. Hence pain can be the result of reflexes through sensory, motor and organic sources. Mackenzie, therefore, defines pain as a "disagreeable sensation due to stimulation of some portion of the cerebrospinal nervous system and referred to the peripheral distribution of cerebrospinal sensory nerves in the external body wall." It is the sympathetic or autonomic nervous system that presides over the functions included in the different organs. Much experimental work has been done to establish the distribution and functions of the nerves that pass from the center to the periphery, but little work has been done to examine the nerves that pass from the viscera to the central nervous system. Mackenzie believes that in the production of visceral pain the afferent nerves of the autonomic system convey a stimulus to the cerebrospinal nerves and stimulate them, so that such phenomena as pain as experienced in the external body wall are the evidences of stimulation by the afferent autonomic nerves. The tissues of the visceral organs are insensitive to stimuli that produce pain in the external body wall. In the course of its passage from the skin to the brain a nerve may be subjected to stimulation and if it be sufficient to provoke a response, pain will be felt and it will be localized not at the point where the stimulus was supplied, but in the field of the peripheral distribution of the nerve. The pressure of a growth on the trunk

of a nerve gives rise to pain when a pain nerve is stimulated, and the pain is referred to the peripheral distribution of the nerve. Every nerve when stimulated to activity gives rise to an action peculiar to its function, hence if a pain nerve be stimulated to the point of pain the pain is referred to the peripheral distribution of that nerve.

Causative Factors in the Production of Pain. Of course, production of pain depends on the presence of a proper stimulus and the integrity of a receptive, to which must be added the conveying and interpreting apparatus. The stimuli may be divided into those which are due to 1. mechanical changes in pressure, 2. toxemia, 3. chemical changes, 4. electrical or thermic reaction, 5. mechanical changes. It is interesting to note that the given stimulus that results in pain may not be of any greater magnitude than that which is daily experienced by the organism, yet because of frequent repetition the condition is finally reached before recovery from one stimulus the cell receives another, and so on. Each stimulus leaves a little of its irritative quality until retention from the accumulation of these irritative remnants become too great and release of nervous energy takes place in the cell, the pain threshold is reached and the sensation of pain results. After having once overcome this threshold, succeeding discharges of this irritative nervous energy take place on a slighter provocation.

The Sensitive Tissues of the External Body Wall. There are three great layers that are endowed with exquisite sensibility to pain, 1. the skin, 2. the voluntary muscles, 3. the loose connective tissue lying immediately outside of the peritoneum. Although the belief is almost universally held that the viscera are endowed with sensory nerves, and although physiologists refer to afferent sympathetic nerves as sensory in function, not a single authentic observation has been recorded to show that the viscera have a distinct sensibility of their own. That pain can be produced by visceral stimulation is not denied. Pain from the introduction of an enema in the lower bowel is a simple illustration, but after many years of careful note recording, the conclusion has been arrived at that the situation of the pain does not, as a rule, directly afford any clue to the situation of the lesion. Stimulation of any part of a nerve that leads to a sense organ gives rise to a sensation that is referred to the peripheral distribution of the nerve. A visceral pain, then, seems to be really a viscero-sensory reflex.

ABDOMINAL TOPOGRAPHY

The need for a uniform topographical nomenclature is apparent, despite the impossibility of exactness. The visceral organs are more or less mobile, new growths have no fixed limits and even the surface landmarks are subject to flux because of individual and postural variations. Added to these difficulties are the numerous suggested markings, no one of which has met with even a majority approval. Addison's zoning is, perhaps, the simplest and recognizes some five surface landmarks that are fairly constant: 1. the suprasternal notch, 2. the upper border of the symphysis pubis, 3. the right and left anterior superior spine of the ilium, 4. the mid point of the mid-line of the body. This last point is remarkably constant; it lies opposite the lower border of the first lumbar vertebra and is located by taking the mid-point between the suprasternal notch and the symphysis pubis. The same point is determined by finding the mid-point between the tip of the ensiform and umbilicus. This point represents the site of the dorsal attachment of the transverse mesocolon and likewise the line of separation of the abdominal cavity into the supra and infra colic divisions.

From zoning as a common denominator, it was an easy stage to charting "points" and "triangles". Their value depends upon their flexibility for underlying structures and constancy of the surface landmarks. Their weakness is, in large part, their designation by proper names and a needless confusion from multiplicity. The original description in McBurney's own language of McBurney's point reads: "located between 1½ and 2 inches of the anterior superior iliac spine on a straight line drawn from that process to the umbilicus". "In every case (of acute appendicitis) the seat of greatest pain, determined by the pressure of one finger has been exactly at this point." McBurney did not mean that there was a fixed point of tenderness applicable, topographically, to all patients, but that there is such a point for each patient and this would be found located between 1½ and 2 inches from the anterior superior spine on the spino-umbilical line.

It is surprising how many inaccurate statements in current literature, including text-books

and even dictionaries, have been made concerning the location of this diagnostic area. The site remains unchallenged, the explanation of the phenomenon has changed. McBurney thought the site indicated the location of the base of the appendix. Among those who recognized quite early McBurney's anatomical error was Murphy of your own state; he rather exhaustively reviewed the many explanations offered for the phenomena such as excitation by pressure underlying sympathetic ganglia, inflamed lymph nodes, extension of a lymphangitis, but held that the real explanation was that the point was a local area of cutaneous nerve distribution which served a reflex connection with afferent stimuli arising from the appendix regardless of the position of the appendix itself. The point is a fixed one then for a symptom as well as for a sign; it is the site where the end of the 11th thoracic nerve comes to the surface.

THE VISCERAL NERVOUS SYSTEM

When thinking in terms of "the Visceral Nervous System" the casual student must be confused by the nomenclature. Particularly would this be true of the graduate of thirty years ago, who came to think of it as made up of two parts, the voluntary and involuntary. These were succeeded by the terms vegetative and somatic; later they were designated vagus and sympathetic, while latterly the student was taught to think of them as the sympathetic and autonomic, and the present-day medical student recognizes it under the terms sympathetic and parasypathetic. Every organ in the abdomen is supplied with afferent neurons that carry impulses to the central nervous system.

Three sets of nerves pierce the roof of the abdominal cavity. (a) The vagus, having wandered through the neck and thorax, supplying adjacent organs, reaches the abdomen to innervate the digestive tract from the cardia to the colon. It carries but few sensory fibres; an operation in the upper abdomen may be done quite free of pain by blocking the splanchnic only; cutting the vagus will not stop the pain of tabes; it will stop vomiting but it must be cut bilaterally. The apparent asymmetry of the vagus nerves, with the left distributed to the front of the stomach and the right vagus to the posterior wall, is explained by the rotation of the stomach while an embryonic viscus. Likewise, the large bowel during intestinal rotation comes to rest on top of the small intestine. Thus the cecum and appendix are carried to the right upper quadrant and lodged below the liver. The transverse colon comes to be superimposed on the duodenum, the lower portion of which now lies under the superior mesenteric artery. The embryological explanation of duodeno-mesenteric ilius is now offered. The appendix and cecal head do not long remain just below the liver, as they are carried downward by the growth of the cecum to the lower right quadrant. In about 2% of all human beings faulty development of the cecum occurs and the appendix remains in the high embryonic position. An acute inflammation of such an appendix may confuse the picture with gall bladder or even biliary duct disease by placing the "pain" in the upper right quadrant. More rarely, no rotation of the intestines occurs, and then the small bowel lies largely on the right side of the abdomen and the cecal head and appendix are found on the left side. Such a condition is not a transposition of viscera but a failure to rotate.

(b) The sympathetic reaches the organs of the abdominal cavity through the splanchnic division. The system originates from the spinal cord, beginning wth the first thoracic and ending at the third lumbar. The splanchnic nerves are largely preganglionic and all of its afferent fibres are connected with posterior root ganglia; most of the sensory fibres of the upper abdomen leave it by way of the greater splanchnic nerves, but Foerster and Shaw seem to have shown that the anterior roots of the cord also carry sensory nerve fibres. The sympathetic ganglia are masses of nerve cells that form the motor neurons. The function of the sympathetic system is not just sensory and motor, but are secretory and trophic as well. The function of the ganglia, likewise, is a composite one; they not only reinforce impulses coming from the central nervous system, but they are distributing centers as well—the number of fibers leaving a ganglion are always more numerous than those coming in.

(c) The phrenic nerves are derived from the 3rd, 4th and 5th cervical nerves, supply both surfaces of the diaphragm and carry both sensory and motor fibres. The induction of artificial pneumoperitoneum may induce a severe pain in the supraclavicular regions or at the tip of the shoulder. Any subdiaphragmatic irritation

causes pain, soreness, tenderness or hyperesthesia in the cutaneous areas of the neck. Pottenger has called these "sensory collars." The old anatomists in naming this nerve were impressed with its action on the diaphragm during emotion,—a state of frenzy, as it were,—hence the name. The nerve supply of the diaphragm is another instance of maintenance of nerve connections of the embryonic period regardless of changes in position of the organ. The diaphragm lies opposite the 1st cervical vertebra during the first weeks of embryonic life.

Visceral Pain. In the normal processes of life a succession of stimuli is constantly passing from the viscera by the afferent nerves to the spinal cord and reacts upon the nerves by muscles, blood vessels and other structures. These usually cause no appreciable sensation. But if a morbid process obtains in any viscus and an increased stimulus passes by the afferent nerve to the spinal cord, this stimulus may affect neighboring nerve cells, and these nerve cells react according to their function. When it is a sensory nerve, pain is produced and will be referred to the peripheral distribution of the nerve so stimulated. The viscera are insensitive to those methods of stimulation that produce pain in the external body wall. Harvey long ago described the insensitiveness of the heart muscle. Mackenzie says that he has stimulated nearly every organ of the body and failed to elicit pain by procedures that would elicit pain when applied to the external body wall.

There have been two schools of thought concerning the question of sensibility of the abdominal viscera, one maintaining that the abdominal viscera of themselves were not capable of producing pain phenomena, the other holding that they were. Perhaps one of the reasons for this division of opinion rests on the fact that the stimuli used to elicit pain response are not suitable for elicitation of pain response in the viscera.

It has long been known that the internal abdominal organs appear insensitive to cutting, burning and other forms of trauma that occasion pain when applied to somatic tissues. Pain of visceral origin may be expressed in parts of the body distant from the diseased process and skin areas may be hyperesthetic and somatic muscles in spasm in regions where only the possible relation to the organ is a common cord level for the nerve involved.

The reason why pain is referred to portions of the body so far apart is because in its development organs have been separated or displaced. One of the best evidences as to the true nature of visceral pain is found in the manner in which pain spreads. The diffusion of pain over a wider area than that occupied by the organ where the stimulus which produces the pain originates can be proved in many ways.

An instance of common knowledge is found in the pain of angina pectoris. When the pain passes from the front of the chest into the axilla and down the left arm, the explanation is found in the fact that the pain is felt in those areas which are supplied by contiguous nerve roots, namely, the third, the second and the first thoracic nerves.

The following are some of the reasons urged that pain is not actually felt in the abdominal organs where the disease is located, but referred to the tissues of the body wall instead. (a) Gastric pain, epigastric in location; though the stomach may lie at a much lower level, even in the pelvis, epigastric pain remains constant in location though the stomach shifts. (b) Intestinal loops that twist and coil throughout the entire intra-colic division of the abdominal cavity, yet the pain is hypogastric and pelvic in location, while in the case of the small bowel it is referred around the umbilicus. When cuts illustrating the distribution of pain are compared with the anatomical distribution of nerve supply to the gastrointestinal tract, the nature of this reference of pain to the midline of the body is really surprising. It is interesting that diseases of the stomach and duodenum give rise to pain over some six inches of the mid-line, while affections of the small bowel, covering 20 feet in its tortuous course, have a body wall zone of no greater than 5 or 6 inches about the umbilicus. And it is also interesting to inquire why the large bowel pain is situated at a lower point than the small bowel pain, when as a matter of fact, anatomically, the colon describes a loop about the periphery of the abdomen and has right and left flexures which reach to the hypogastric region, while the terminal ileum is situated at such a low point in the abdomen, or even may be in the pelvis. So that when one studies this adult surface map for pain in juxtaposition with a picture of a six-week embryo, the situation becomes more easily clarified.

From this embryo it may be seen that the upper third of the abdominal portion of the archenteron gives rise to the stomach and proximal duodenum, that the mid third gives rise to the terminal duodenum, the remaining parts of the small intestines, the cecum, the appendix, ascending colon and the proximal portion of the transverse colon; while the distal third in the primitive bowel gives rise to the remaining portion of the colon. And as the nerve tissue is being distributed at this period of development, and since the central nervous connections are established at this time, it follows that all subsequent twists, elongations or any other changes that occur in individual portions of the digestive tract have but little effect on the adult reflex pathways. Relationship of the three primary divisions of the archenteron to the three equi-distant zones of the midline of the anterior abdominal wall remains fixed and constant.

The fact seems to be pretty well established that diseases of the stomach produce pain in the epigastric region with considerable regularity. The confusing part of the study of the causes of pain follows in the statement that all epigastric distress does not necessarily signify a gastric lesion. Stewart referred to the stomach as "the spokesman of the abdomen" and this appears to be true, since an analysis of abdominal conditions disclosed the fact that only about one-third of symptoms referred to the stomach are actually due to stomach lesions. The second third are caused by extra-gastric diseases existing within the abdomen or pelvis: for example, gallstones, chronic appendix, tubercular peritonitis, ovarian cysts, etc. The remaining third of gastric symptoms are due to conditions not even located in the abdomen, but existing entirely outside, as basilar meningitis, brain tumor, pulmonary tuberculosis, exostoses associated with the lower thoracic vertebrae. In fact, it may be said that lesions at almost any point in the body may cause gastric symptoms through either a direct or indirect involvement of gastric vessels and nerves. The enumeration of such a list would be tediously long, but would include such general headings as endocrine disturbances, psychic disturbances, drug poisonings, abdominal allergies and whatnot. If the diagnostician is to arrive at a correct diagnosis, then, when reviewing this subject of pain, he must be thoroughly familiar with the many medical and surgical conditions represented by such an extensive list of actual causes. Hence in his survey, in attempting to correctly diagnose the cause of abdominal pain, he must not only make a thorough examination of abdominal contents, but likewise of the head, the thorax, the extremities, in fact, every region of the body. The abdominal spokesman may merely indicate that there is trouble, and it remains for the diagnostician to correctly identify the organ or tissues diseased.

Embryology as a Basis for Interpretation. The study of embryology of the gastrointestinal system is particularly valuable in explaining the localization of pain due to alimentary tract affections. Mackenzie was a sort of pioneer in this pain-reference study, for as early as 1892 he described his observations on a group of some 320 patients suffering from diseases of the stomach. He found the pain to be localized within the epigastrium in 95% of his cases. Later, in a larger study covering several thousand cases, he came to the conclusion that the patient does not actually feel pain within the viscera, but refers it to the abdominal wall and to the area of distribution of the sensory nerves of the cerebrospinal system. He thought that pains from digestive disturbances were interpreted by the patient as arising at the periphery of the sensory nerve distribution, that is, approximately midline of the body anteriorly. He proceeded to plot the anterior surface of the lower chest and the abdomen with regard to the nerves in patients with abdominal organ disturbance.

Hurst, in disagreeing with Mackenzie that pain is not felt in visceral organs, argues that the viscera show a somatic or referred pain expressed through spinal nerves, and also a definite visceral pain.

The gastrointestinal tract or the enteric canal is some five or six times the length of the body. Its extreme length represents an adaptation to a function. The abdominal cavity is occupied almost entirely by organs that have to do with the processes of alimentation and a consideration of the conditions which may obtain in this space will of necessity demand that a major portion be given to the enteric canal.

Embryology here as elsewhere has proved the most reliable guide in explaining adult conditions. It is only through an insight into the series of changes that take place during embryonic life that many observations made at the

bedside and many surgical maneuvers are made clearly intelligible. It may be said that embryology is the mechanism by which signs and symptoms are initiated.

Viewed embryologically, the abdominal portion of the human body is fundamentally a tube suspended within a tube. The external surface of the outer tube is derived from the ectoderm and is largely protective and relational in function, while the inner lining of the inner tube, which in actual square surface more than equals the area of the skin itself, is derived from the endoderm and represents the nutritional tissue of the body. Between these two tubes is the potential space, whose walls are derived from the mesoderm, and is known as the abdominal cavity, or the extra-visceral cavity, the peritoneal cavity. The study of the clinical significance of these three primary germ layers involves a consideration of four topics, 1. Origin of the gastrointestinal tract. 2. Origin of the peritoneal cavity. 3. Distribution of the adult gastrointestinal tract. 4. Final attachments of the gastrointestinal tract.

Origin of the Gastrointestinal Tract. It will be recalled that the enteric canal develops from the yolk sac. It is formed from this structure as the embryonic rudiment bends forward at its cephalic and caudal extremities, creating the anterior abdominal wall. At first the enteric canal is lined at its cephalic and caudal ends, while the middle part of the ventral wall is continuous with the wall of the yolk sac. That portion of the tract that opens into the yolk sac is called the midgut, that which is cephalic to this opening is called the foregut and that which is caudal is called the hindgut. The opening in the yolk sac gradually narrows as the anterior abdominal walls close in, but a connection is maintained by a slender tube called the yolk stalk or the vitello-intestinal duct. With the degeneration of the yolk sac into a yolk vesicle this vitello-intestinal duct exerts a traction on the intestine that is at the point of attachment and thus draws a loop of small bowel out of the body cavity into the umbilical cord. This intestinal loop with the duct at its apex has two limbs. The first of these has been variously termed proximal or descending limb, the second the distal or ascending limb. This protrusion of bowel into the umbilical cord is known as the embryonal-umbilical herniation. The loop begins to enter the cord at the 10 m. m. embryo stage or (three weeks) and the degree of herniation increases until the 10th week ends embryo life. Normally after this period the bowel returns to the abdomen. The umbilicus is the last point in the abdominal wall to close and the navel represents the central point in the anterior body wall. In the adult the only trace of the early connection between the intestinal canal and the umbilicus is the rather rare existence of a diverticulum uniting the lower portion of the ileum with the navel. This is called Meckel's diverticulum.

VISCERO-SENSORY REFLEXES

(a) Gastric.—Sensory reflexes from the stomach are commonly located to the left of the midline anteriorly, and on the skin distribution of the sixth and seventh thoracic nerves posteriorly. Acute dilatation results in a widespread pain. In the stomach, as in all hollow viscera, distension is the natural stimulus of sensory nerves.

The stomach is supplied by nerves from the dorsal sympathetic and from the vagus. The skin over the epigastric region receives its nerve supply from the sixth and seventh thoracic nerves and the upper portion of the rectus is supplied by the sixth nerve. The burning pain of heartburn is generally felt over the lower part of the sternum in the region of the distribution of the fifth thoracic nerve in the chest. The cause of this, perhaps, is regurgitation into the esophagus of the acid content of the stomach. Ninety-five per cent of pain originating from affectations of the stomach are referred to the epigastrium. The stomach is a hollow muscular viscus, but severe cramping pain from violent peristalsis is rather rare. Cramplike pain referred to the epigastrium is more likely to be due to a gallstone. The pain from stomach disease is usually of a dull boring character, with an outstanding trait of prolongation, varying little in intensity from time to time. The relation of pain to the ingestion of food is variable. The effect of pain on the digestive function is akin to the effect of emotional states. Both motility and secretory activity are inhibited largely through their effect of stimulation on the sympathetic system which antagonizes the normal action of the vagus. Food may remain in one part of the digestive apparatus indefinitely with no digestion changes.

Cardiospasm may cause pain. Some fourteen

years ago Carlson asserted that the cardia was innervated by both the vagus and sympathetic nerves and spasm resulted from stimulation of the efferent branches of either system. If this be a physiological fact, it upsets the rather general thought that an antagonistic action obtained between the vagus and the sympathetic. However, Pearcy and Van Liere demonstrated a stimulus in one part of the digestive tract could induce inhibition in some other part. By such mechanism disease of the appendix, biliary tract or the urinary bladder may cause cardiospasm and its resulting phenomena. A dysphagia may be painful and simulate gallstone colic, particularly if due to a cardiospasm. While dysphagia would ordinarily lead one to think of some pathology in the esophagus, yet it must be remembered that peptic ulcer is frequently associated with spasm of the cardia. Under such circumstances dysphagia will develop.

A sense of fullness is not an uncommon experience in peptic ulcer. It occurs as well in functional disorders. Where there are organic causes for this sensation, they are usually things that reduce the capacity of the stomach. The sense of fullness may be the result of pylorospasm, or on the other hand it may be the result of an atonic gastric musculature and sometimes of either a flattened or slightly reversed gradient of forces in the digestive tract.

(b) Intestinal.—Pain sensation originating in the small gut is usually referred around the umbilicus. If the colon is the site, the reference is in the mid-line between the navel and pubic bone. Soreness or hyperesthesia, either or both, are common accompaniments. Disease of the bowel usually causes localized or general increase in muscle tonus. This is not a uniform peristalsis, however, but rather an irregular contraction of the circular fibres, which results in pain of a colicky nature. This type of pain is associated with increased vagal tone, whether acquired or inherent to the individual. The peristaltic wave is slowed above the point of irritation and is quickened below; the bowel distends above the site of trouble and colicky pain results.

The pain from appendicitis is often felt around the umbilicus at the beginning of an attack, but tenderness and guard at the site of the appendix may be determined this early. Transference of the pain sensation to the left side of the abdomen may occur when the appendix is on the right side; the clinician often concludes, in such instances, that the appendix is situated on the left side or that the tip crosses over. Such a conclusion is usually wrong, for the location of the appendix does not alter the relationship of the reflexes which are concerned with the pain. Involvement of the peritoneum, some other visceral organ or a shifting of different stimuli in the spinal cord, one or all of these may supply the answer. The early pain of appendicitis is perhaps a true visceral pain, later it is due to an involvement of the parietal peritoneum.

(c) Peritoneal.—The parietal peritoneum is supplied by the same sensory nerves as are distributed to the overlying skin. A localized peritonitis, involving the parietal layer, causes pain over the site of inflammation, as well as rigidity of the muscles in that region.

The pain in intraperitoneal injury is deep-seated, widespread and is commonly located by the patient in the region of the umbilicus. The shock accompanying is the result of an overstimulation followed by paralysis of the vital reflex centers, respiratory and vasomotor.

(d) Pancreatic.—The pain in acute pancreatitis is severe, even intolerable. It is located in the same peripheral sensory area as is found in stomach diseases, just to the left of the mid-line in the epigastric region. The reflex may spread, as in other conditions, to adjacent neurons, hence felt in the neck, shoulder and in right abdomen. The pain felt in the neck and shoulders is explained by assuming the pancreas receives fibres from the phrenic nerve which contacts the cervical segments in the cord.

(e) Biliary Tract.—The viscero-sensory reflexes expressing pathology in the liver and gall-bladder are found in three areas, along the right costal margin, under the right shoulder blade and in the right Kroenig's area. A study of the nerve supply of the biliary tract offers a ready explanation for the clinical symptomatology common in disease of these structures. From the vagus come activating fibres to the gall bladder and ducts and fibres of inhibition to the sphincter of Oddi. The sympathetic system supplies antagonistic action to the vagi; its fibres derive from the semilunar ganglia, to which are supplied fibres from the 5th thoracic to the 9th. In addition, the phrenic nerves from the spinal cord go to the liver and gall bladder, the

phrenico-abdominalis goes along with the sympathetic from the celiac plexus, the afferent impulses from which travel over the sensory fibres of the right phrenic nerve to the 3rd and 4th cervical segments. The clinical application of this anatomical study covers the viscero-sensory reflexes of the liver and gall bladder. Pain will be felt in the right rectus region because of the connection between the sympathetic from the semilunar ganglion and the 5th to 9th dorsals; it may follow the zones of these dorsal nerves to the back, hence the subscapular pain; it may follow the phrenic, which connects with the cervical segments of the spinal cord and thus pain may be experienced in the region between the clavicle and spine of the scapula which is innervated by the 3rd and 4th right cervicals.

By far the most common extra-gastric cause for epigastric distress is some affection of the biliary adnexa. The possibility of gallstones should always be borne in mind in any case of chronic indigestion, and when viewed embryologically, the bile ducts, it will be recalled, arise as an outgrowth of the developing duodenum (endodermal portion) and it might therefore be anticipated that when pain is thus produced, reference of that pain to the middle of the anterior abdominal wall would correspond to the surface zone for the gastric and small intestinal pain. That this is not wholly theoretical is made clearer by a study of Bodenstab in 1918 and Akana, Greely and Farr in 1927, where it is concluded that from 20 to 40% of all cases of cholelithiasis and cholecystitis find the pain referred solely within the epigastric region. And even those cases in which the chief pain is referred to the right hypochondriac region in gallbladder disease, there is almost always some epigastric pain as well. It may be concluded, therefore, that regardless of a spinal radiation or other localizations that biliary duct pain, unassociated with local peritonitis or other complications, is primarily epigastric. May not this anatomical fact explain the rather considerable percentage of incidence in which gallstones have been clinically characterized as "silent"? One so often reads in the records of such cases statements like the following: "There were no preoperative symptoms referable to the gallbladder"; "Complaints before operation were entirely gastric"; "Chronic indigestion"; "Chronic gastritis"; "Dyspepsia." It may be that we have been waiting for rigidity in the upper right quadrant, for associated pain in the right shoulder, for an inspiratory dyspnea and jaundice before our attention is correctly invited to a gallbladder disease which for months or years has been causing varying degrees of epigastric discomfort.

Another interesting feature in connection with this reference of biliary tract disease to pain is found in the frequent statement that the gastric symptoms of biliary tract disease are due to "reflex stomach." It is perhaps the vagus reflexes and that such gastric dysfunction as hypermotility, hyper-irritability, hyper-secretion, pylorospasm, all of which may be demonstrated by fluoroscopic study or fractional analysis of stomach contents, can easily be explained on the basis of biliary tract disease. When one remembers that the biliary tract itself is capable of initiating epigastric pain, one does not necessarily have to invoke reflexes to explain that pain.

(f) Relation of Blood Vessels to Abdominal Pain.—A consideration of such evidences of obstruction of veins as dilated collateral superficial vessels is not contemplated. Conditions which result in pain constitute our present interest and the veins bulk larger in importance than arteries in such grouping.

Emboli in the liver are the result of (a) disease of the appendix, (b) infections of upper abdominal structures and (c) operations on upper abdominal viscera. The liver is a filter through which emboli from the veins of the portal system must pass; if they are infected, liver abscess results, with only infarction if sterile. Operations and infections in pelvic organs infrequently result in hepatic emboli because the veins of these structures drain into the iliac veins. Pulmonary emboli and infarctions are in consequence more common from these systemic emboli.

The location or radiation of pain in the liver from emboli or abscess is not at variance with such phenomenon from other causes. The thoracic, even precordial pain of pulmonary embolism, may be the first signal of something wrong in the liver, abdomen or pelvis. The incidence of thrombosis following abdominal and pelvic operations averages about 3% of cases. Embolism results in at least 50% of all postoperative thromboses or in 1.5% of all cases.

The most frequent cause of a symptomatic varicocele is a tumor of a kidney and may antedate discomfort in the renal region. An embolus in the superior mesenteric artery produces a clinical picture that very closely resembles acute intestinal obstruction, particularly when of mechanical origin. Complete blockage is promptly followed by extensive hemorrhagic infarction of the intestine. It is also possible for a petechial hemorrhage occurring in the cecum or appendix from purpura to closely imitate an appendicitis. Angina abdominalis may be referred to individual abdominal organs with a close mimicry of an acute disease in such organ.

A summary of the two theories of visceral pain may thus be concisely stated:

Mackenzie's theory holds that impulses arising in diseased visceral organs pass to the cord over the sympathetic nerves, there establish an "irritable focus" and overflow into somatic pain tracts. Pain is thus referred to the peripheral somatic nerve ends in the area where the spinal overflow occurs.

Morley's theory, on the other hand, holds that true visceral pain is conducted by sympathetic nerves directly to the brain independently of somatic nerves. Therefore, true visceral pain is not well localized, does not radiate, is not associated with rigidity nor tenderness of the abdominal wall.

The espousal of either of these leaves unanswered an inquiry as to the mechanism of visceral pain. If ischemia be the cause, as Sutton and Leuth argue, in angina pectoris, there still remains unanswered the query, what does anoxemia do? Was Lewis correct when he attributed the pain of intermittent claudication to the accumulation of metabolites in a functioning muscle of a leg but inadequately supplied with blood? If such analogies may be applied to the intestinal musculature one is prepared to accept the term intermittent claudication as applicable to the type of pain occurring in a partially occluded mesenteric vessel. And further, one is prepared to accept the clinical picture of a persistence of pain and a paucity of signs as suggestive of an abdominal vascular disaster.

Taube believes such a condition may attack any part of the vascular tree and distribution may be extensive. The incidence, as found in his study of the literature covering 26 cases in 1931, was the renal and iliac each one, the mesenteric, celiac axis and spermatic arteries each two, the cerebral three, aorta four and the coronary fourteen times. Buerger reported the first case of proved mesenteric artery involvement. Sprunt's case was diagnosed clinically as mesenteric thrombosis and is interesting because the abdominal picture antedated involvement of an extremity more than a year. He emphasizes that it is not the presence of an inflammatory lesion, but its extent and the resulting ischemia that causes the pain. In all of the records of cases reported pain appears to be an outstanding symptom, often described as agonizing. A rather singular feature of the pain is that deep pressure on the abdomen appears to afford some relief. The patients are uniformly restless, walking about or tossing about in bed, sometimes even lying on the floor. Of course, there are varying degrees dependent on the size of the vessel involved.

In thrombosis of mesenteric vessels circulation can be carried on when a large part of the venous system has been thrombosed. No intestinal infarction occurs as long as the anastomotic arcades and their radicals remain free and some tributaries opening into a vein above the clot are patent. Extensive thrombosis only leads to lesions confined to a small region of the bowel.

Primary mesenteric thrombosis results from gradual constriction of an artery, generally an arteriosclerosis. Secondary mesenteric thrombosis usually follows operations with infection, then a thrombo-phlebitis results, with gangrene. The symptoms resemble bowel obstruction. This is really what it amounts to since the bowel with blood supply loss becomes inactive. Pain is of sudden onset, tends to radiate to the lower abdomen after a period of general distribution with no localizing symptoms. In superior mesenteric vessel pathology it is just above and to right of the umbilicus. The possibility of mesenteric thrombosis is suggested if a mitral stenosis or subacute bacterial endocarditis or a septic lesion obtains in the abdomen.

I have had but one case that was verified by autopsy study. This was a man of 52 who had thrombo-angiitis obliterans of the left leg with amputation. One year later he had a sudden attack of severe pain in the epigastric region with vomiting, a normal temperature and a low grade muscle rigidity. He died before surgical relief was had and autopsy showed the ileum

gangrenous for some 16 inches, the mesenteric vessels sclerosed and one thrombosed.

This much emphasis has been laid on this possible causative factor in abdominal visceral pain because, while described frequently in the literature, acceptance as a clinical fact has not been general. The attitude of the profession has undoubtedly been due in no small degree, to the pronouncements of Allbutt and Osler that abdominal pain in patients with vascular disease was a part of an anginal syndrome. That opinion is yet divided may be concluded by citing Morley's[6] statement that there is no evidence of vascular disease in the abdomen causing pain other than the resulting gangrene and peritonitis, and the conclusion of Conner that visceral arterial disease is analogous to coronary disease. Dunphy has more recently reviewed a group of patients dying of occlusion of the mesenteric arteries. He concluded that vascular disease can cause abdominal pain without gangrene or peritonitis and postulates it to be due to anoxemia of the musculature.

If it be a true visceral pain the sensation is conveyed by sensory neurones in the sympathetic nerves independent of musculo-cutaneous fibres. It is noteworthy that the absence of muscle rigidity and localized tenderness in cases of mesenteric vessel occlusion presents a striking contrast to the clinical picture of an acute pancreatitis or intestinal perforation.

(g) The Pain of Peptic Ulcer. The hunger pain of peptic ulcer is one of the most striking symptoms encountered in daily practice. Its origin, however, is still problematic. The two chief explanations that have been offered are (1) that the pain is due to deep muscular contraction, (2) that it is due to an increase in the acidity of the fluid bathing the ulcer. Much of the old tangle of conflicting evidence between the mechanical and chemical factors of pain in ulcer seems to have been straightened out by Palmer. He concludes that the stomach of the patient with an ulcer may be sensitive to an acid at one time and not another; that so much depends on the state of irritability or activity of the ulcer. As an ulcer heals it becomes symptomless; the patient will then rarely feel the presence of hydrochloric acid. But while the ulcer is active, growing, symptoms arise. Ivy, on the other hand, believes that the intermittent type of ulcer pain is due to changes in the tonicity of the muscle at the site of the ulcer, brought about by peristalsis or local spasm, while the continuous type of distress is due to congestive edema and inflammatory reactions about the ulcer, all of which lower the threshold for stimuli. In such an instance the acid plays a role because it irritates the nerves and increases the edema about the ulcer. He accepts the theory concerning the lowering of the threshold as being an important factor.

Alvarez then concludes from a review of the work done in undertaking to explain the pain of ulcer that the main factor is probably a sensitization of nerve endings in the upper part of the digestive tract, a sensitization that causes them to respond painfully even to the presence of an acid or to certain types of contractions, and when the nerves become less sensitive the threshold is raised and the ulcer ceases to cause symptoms. This explanation does not answer all of the problems and he further concludes that one of the lessons to be learned by the clinician from work done on hunger contraction is that he cannot put the stomach at rest simply by withholding food. Actually, in the presence of an ulcer the powerful hunger contractions are much more disturbing, probably more harmful to the patient than are the waves that course over the lower end of the stomach during the period of digestion. Certainly one of the easiest ways in which patients can be made comfortable is by giving them something to eat every two hours.

Disturbances of sensation of a continuous or remittent nature, especially the former, are more characteristic of functional disorders. Patients presenting visceral manifestations, the daily appearance of symptoms, continuous throughout their waking hours, curiously enough not interfering with sleep, reappearing on awakening, are extremely suggestive of functional rather than organic deficiency.

During the developmental period the stomach and the duodenum come from the foregut and extend down as far as the ampulla of Vater. The foregut terminates at the point of entrance of the ducts of the liver and the pancreas. At the end of the second month of fetal life the pylorus marks off the stomach from the duodenum, and when development is complete it is usually possible to distinguish the stomach from the duodenum. By palpation the pyloric muscle is felt with ease and exactly in line of the

pylorus will be seen a thin white line, and in close proximity to this white line is a vein called the pyloric vein, which begins at or near the middle of the anterior surface of the pylorus and runs downward to the greater curvature. However, there are no landmarks in the body that are invariable. When an ulcer occurs on the proximal side of this vein, it is called a gastric ulcer, and when it occurs on the distal side it is spoken of as a duodenal ulcer. It is not a matter of academic interest to distinguish between these two. Moynihan thinks their symptoms are sufficiently distinct to allow an actual diagnosis of duodenal or gastric ulcer to be made with remarkable confidence. The chief symptom of ulcer of the stomach is pain, and uniformity is its major attribute. There may be periods of intermission, they may be long or short, but when the attack comes pain is the chief feature and it always displays regularity. It comes after the intaking of all food even in small amounts. The period of relief from pain after a meal is constant and invariable, both in gastric and duodenal ulcers, until stenosis, subacute perforations or the formation of crippling and embarrassing adhesions take place. When a pain occurs two hours after the intake of food the chances are four to one that it is a duodenal pain. When it occurs within one hour and a half after the intake of food the chances are three to two that it is a gastric ulcer. The fact that the pain is often relieved by the taking of food is a reason that many patients do not lose weight but may actually gain during a period of activity. Smaller meals taken at shorter intervals, which may result in the total amount of food being greater than that which would ordinarily be taken results in a weight gain.

Rivers found that more than 90% of patients with a shallow gastric ulcer complained of a poorly localizable pain. When an ulcer was large and subacutely inflamed at least 50% of the cases were able to definitely localize the pain. Where the pain was due to a perforating ulcer 90% of the cases could accurately localize it in the left upper abdominal quadrant. Whenever the lesion extended to the mesentery, the meso-colon or the abdominal wall, in 93% of cases they were able to note secondary shifts of the pain into the thorax or back. These remarks all apply to gastric ulcer. In the case of a duodenal ulcer, he thought that in an obstructing lesion the distress was usually diffused over the epigastrium and that the sequence of symptoms was generally lost. In a non-perforating ulcer of the duodenum the situation of the pain was poorly defined in some 64% of the cases. In a perforating duodenal ulcer the pain was localized in the right upper abdominal quadrant in 90% of the cases. When a perforating lesion occurred 67% of the patients experienced a shift of the pain to the region of the liver or into the back. The syndrome of a peptic ulcer so far as pain is concerned usually maintains its original characteristics until decided anatomical changes occur in the lesion.

The pain from peptic ulcer probably indicates its presence as a visceral phenomenon by way of the splanchnic nerve. The pain of a perforating peptic ulcer is probably the result of a direct stimulation of the somatic nerves, with a relay of these impulses as pain into the peripheral or painless branches of the somatic nerves. The distortion of the ulcer pain complex may be influenced by the accumulation of impulses of varying intensity over both the splanchnic and somatic nerves.

The presence of two distinctly separated areas of pain may be suggestive of two separate lesions. Recurring lesions offer no particular change from the symptoms caused by the original lesion. In fact, they are usually a rather exact duplication of the original trouble.

Pain is an extremely variable feature in the evolution of gastric ulcer, but is the most constant and characteristic symptom. The degree of pain varies from a mild recurrent one on the one hand to one so great on the other as to induce syncope. It is generally located in the epigastrium between the ensiform and the umbilicus and not infrequently either to the left or to the right of this point. When it radiates to the back it is usually between the 10th and 11th dorsal vertebrae. The kind of food has something to do with the time of the appearance of the pain. Of course, irritative food will make it appear in the first half hour of digestion, while a bland meal may postpone it for one to two hours. When a pyloric stenosis occurs the pain is apt to be more constant. The pain at the pylorus is usually greater than that of an ulcer high up, owing to its fixed position and the difficulty in distending it by the passage of food.

Stenosis, perigastritis and peritonitis convert an intermittent pain into a constant pain. A characteristic feature of the pain of a gastric ulcer is relief by vomiting and large doses of alkalies.

Pain that is characteristic of stomach lesions, particularly of ulcers, is described as dull, boring and deepseated. It differs from colic in that it is neither spasmodic nor does it have equal intensity. The time of the onset of pain after food varies in an individual case, but in that individual case there is a peculiar, almost clocklike, regularity in the onset of the discomfort after the ingestion of food. Ulcer distress has been described as a quantitative dyspepsia rather than a qualitative dyspepsia, as obtains with gall bladder disease, for example. A young person who is hungry but is afraid to eat, because eating regularly sets up pain, can be almost certainly diagnosed as a peptic ulcer patient. The time of the pain bears a rough relationship to the location of the ulceration along the digestive tract. Pain that occurs within a half hour after eating would suggest ulceration near the esophagus, while that beginning from a half hour to an hour and a half after the taking of food would suggest a pre-pyloric ulcer. After this period, when pain occurs, it will be more likely to be duodenal. Some authors refer to the discomfort with relationship to food as "cyclic" and it is interesting to note that Moynihan refers to the "rhythmicity" of a peptic ulcer pain. He thinks that the rhythm with gastric ulcerations is a triple one, that is, the cycle would be *food, relief, pain, food, relief, pain,* triple pain rhythm. With duodenal ulcer, he says that the rhythm is *food, relief, pain, relief; food, relief, pain, relief,* a quadruple rhythm. He thinks that the discomfort begins so long after the ingestion of food that it may be termed a hunger pain and, following the intake of food or alkalies, there is a long period of relief in the case of the duodenal ulcer. In the case of a gastric ulcer, the pain wears off gradually before time has arrived for the ensuing meal, and the period of relief after each is so brief that the patient fears the effect of putting anything into the stomach.

Pain in duodenal ulcer usually appears in three or four hours after meals and generally persists until the next meal is eaten. Graham describes the syndrome as "that in which the pain or distress comes within two to five hours after meals, accompanied by gas, sour stomach and vomiting, one or all appearing about the same hour and continuing until the next meal, or until something is done to relieve the acid state. The symptoms are repeated with uniformity day after day, week after week. Then comes an intermission of perfect relief, or at least remission of the symptoms. In relief from recurring attacks there may be no change in the symptoms unless complication alters the gastric movements and functions." There is a group of cases, however, in which the outstanding clinical feature is the regularity of the pain rhythm. In this group there is no freedom from pain nor is there an interval between the taking of alkalies. With each exacerbation in this group, however, there is the same strong resemblance in symptoms to preceding attacks. Then there is another group of cases in which pain is found in an unusual situation. It may be thoracic, mid-dorsal or hypogastric, and when such peculiar locations are found various diagnoses have been made, such as angina, aneurysm, colonic disease, etc. In this group, however, careful inquiry will almost always reveal the same classical food-pain-food sequence and point the way to a proper diagnosis. In groups where there are isolated attacks of pain in the epigastrium or the right upper quadrant, with posterior extension, symptoms may simulate gallstones.

Pain in duodenal ulcers may be in a most unusual situation. For instance, it may be in the thoracic or the mid-dorsal or the hypogastric region. In such cases diagnosis is difficult, but in spite of the unusual situation of the pain, inquiry almost invariably reveals the classical pain-food-relief sequence.

Pain from both gastric and duodenal ulcers which shifts definitely from its original site is usually suggestive that the ulcer has extended deeper into the tissue. This is referred to as secondary pain. Along with this secondary pain there generally comes changes in other characteristics of the syndrome; since there is less tendency toward intermittency of the sequence, there is less relief from distress by the use of food or alkalies and generally there is also more night distress. Abdominal tenderness and soreness now make their appearance.

PHENOMENA RELATED TO PAIN

Hyperalgesia.—In addition to what is described as pain, another sensory phenomenon is

frequently seen in disease of the stomach. The area that becomes hyperalgesic is the epigastric region. It may be present in the skin or in the muscles or both. In such cases where the patient can localize the seat of pain with great definiteness, it has been observed that when the ulcer is situated near the cardiac end of the stomach the site of the pain and hyperalgesia were at the upper part of the epigastrium. When the ulcer was in the middle portion of the stomach, the site of pain and hyperalgesia were in the mid-epigastrium, and when the ulcer was at the pylorus the pain was felt in the lowest portion of the epigastrium.

Hyperalgesia is usually thought of as a referred phenomenon. It has been used as proof of the accuracy of Mackenzie and Lennander's contention that visceral organs have no pain sense. Notwithstanding, there are certain features about hyperalgesia that indicate it may be the result of pure visceral reflexes. The vascular changes and localized sweating which are so commonly associated with hyperalgesia are surely not the product of somatic nerve action. Whichever side of the controversy one may wish to take, it remains a clinical fact that in disease of a visceral organ hyperalgesia and vascular changes occur which are segmentally related to that organ.

Muscle Rigidity.—Muscle spasm is a common phenomenon in visceral disease. When it occurs on the side of the body opposite to the diseased organ it is diagnostically confusing unless it be noted that the affected muscles and the visceral organ receive their nerve supply from the identical cord segments. Furthermore, there is no little evidence to show that different somatic neurons to skeletal muscles may be stimulated directly by visceral afferent impulses. Morley has emphasized a direct extension of inflammation to the parietal peritoneum as a common cause of muscle guard in intraabdominal disease. Livingston is in partial agreement with such an explanation when he cites the absence of resistance of muscles in the anterior abdominal wall in a retrocecal appendicitis and of spasm in the right psoas muscle: attention is called to the fact that this muscle is supplied from a spinal cord segment different from the appendix. Since the parietal peritoneum is well supplied with afferent somatic neurons it must respond to a wide range of stimuli. Livingston further argues that pain thus produced should be considered distinct from the local hyperesthesia; it is spontaneous, while hyperesthesia needs an added stimulus as touch or pressure.

Acceptance of such factors as part explanation for visceral pain does not lessen the importance of visceral reflexes. They do effect changes in the abdominal wall that aid in diagnosis, if understood. But they do more; they cause the symptoms that form the composite clinical picture. I am impressed with the clinical aspect of Livingston's grouping of these clinical pictures: "the shock group, the inflammatory group and the colic group." A sudden onset, continuous pain, extensive muscle spasm, varying degrees of shock, subnormal temperature, a high cell count, a grave prognosis and a need for immediate surgical intervention is his picture of the shock group. The inflammatory group has a more gradual onset, an aching pain, low grade muscle spasm, a febrile course, high cell count, a better prognosis and a more leisurely surgical approach. The colic group presents a periodic pain, little or no muscle spasm, normal temperature, normal cell count, a variable prognosis and a treatment problem equally as variable.

Visceral Neuralgia.—The segmental pains are the areas of hyperesthesia in the skin referred to as Head's zones of referred pain (due to visceral disease). They find their explanation in abnormal irritation of the centripetally conducting sympathetic neurons, which terminating upon the ganglion cells in the spinal ganglia so irritate the peripheral cerebrospinal sensory neuron as to give rise to the sensations referred to the source whence these neurons normally gather impressions, i. e., in the skin.

Violent neuralgic pains are sometimes felt in the internal organs when they are diseased or when the nervous system is diseased, as for example, the gastric crises of cerebrospinal syphilis.

Pyrosis.—Heartburn is a form of sensory disturbance and may be considered under the heading of pain. When it is present it is usually experienced as a burning sensation in the epigastrium or the lower end of the esophagus. When accompanied by the regurgitation of an acid fluid, it is experienced in the pharynx or mouth. It is generally an accompaniment of hyperchlorhydria, either with or without an ulcer. There are some cases, however, of hyper-

chlorhydria where heartburn is entirely absent. Such a pain may also be produced by the regurgitation of biliary content, the use of tobacco, acidulated drinks; dietary indiscretions may either produce or aggravate this symptom. Pregnancy is very frequently associated with heartburn.

Embryonic Defects.—Embryonic defects are more common in the mid-line of the body than elsewhere. It is here one finds umbilical and epigastric herniations or a persistent Meckel's diverticulum. It is believed that epigastric hernias are frequently overlooked. They are of congenital origin, vary in size and are found within three inches of the umbilicus usually. The contents vary from a small mass of subperitoneal fat to a peritoneal sac containing gut. The symptoms vary, but pain is common; it may be of a dragging nature or a sharp, well defined pain. A diagnosis of peptic ulcer is the most frequent error.

Variation in Pain Sense of different intra-abdominal Structures.—The rectum is the most highly sensitive portion of the gastrointestinal tract, while the stomach at the other end is more sensitive than the intestine. Pottenger defines visceral pain as "a pain caused by stimuli arising in an internal viscus which is referred and felt in the areas supplied by skeletal sensory nerves. The referred pain from the viscera is produced by transference of the sensory impulse from the sympathetic sensory to the spinal sensory neurons and from the vagus sensory neurons to the sensory neurons of the 5th cranial nerve. The abdominal wall is supplied with sensory nerves from the lower six thoracic spinal segments; stomach and small gut, ascending and transverse colon by 5th to 12th thoracic and 1st to 3rd lumbar segments.

Referred Visceral Pain.—The referred nature of visceral pain is explained by Head as the basis of viscera not possessing epicritic sensibility, for when a structure is once so endowed, pain is no longer referred.

Hyperalgesia of the skin commonly occurs in visceral disease. Head laid down the following rule in a determination of the location of visceral pain:

> "When a painful stimulus is applied to a part of low sensibility in close central connection with a part of much greater sensibility the pain produced is felt in the part of higher sensibility."

Then says Pottenger, "that the internal viscera are less sensitive than the skin areas supplied by sensory nerve cells . . . would account for the pain being felt in the more sensitive nerves of the skin."

Recurring Pain from Visceral Disease.—A very annoying evidence of chronic visceral disease is recurring pain in the absence of activation of the visceral disease. Nerve fatigue or depressive mental states may induce such recurring pain and the nerves conveying these viscerosensory impulses may become markedly hypersensitive. Mackenzie recognized this phenomenon and called it a "persistent hyper-irritability of the nerve cells." It may be explained by the assumption that the threshold of response for nerve cells to a given stimulus can be lowered so that a lesser cause comes to constitute an adequate stimulus.

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WHY HISTORIES?

JOHN A. CAVANAUGH, M. D.
CHICAGO

Are they to make an impression on the patient?

Are they to correlate the subjective, objective and clinical findings for a diagnosis?

Are they to recall incidents of a patient's visit in case of malpractice suits?

No doubt the answer is the same as it would be to the question: Are preliminary precautions necessary in any big undertaking?

Would a professional builder commence construction of a building without plans and blue prints?

The idea "Why Histories," came to me, after visiting offices and schools at home and abroad. In one place a small blank card served for a history, in another, several sheets covered with printed matter were required, and in different localities degrees of these two extremes suited the purpose. The question naturally arises, what is the best form?

It is doubtful if a clear comprehensive history can be secured by a paid assistant, checking a plus and minus sign, or a yes or no after questions on the stereotyped page record.

Isn't the knowledge of a clinician necessary to bring out questions of importance? Each case is different, and there are symptoms to be enlarged upon by trained intelligence. Without this experience the record is incomplete. A real clinician will lead the patient to tell his story in his own words, which under expert direction, becomes a valuable history, essential data that is forerunner of a good diagnosis.

Since case histories play a valuable role in forming diagnosis, why do not Medical Schools include a curriculum in this branch?

The well trained physician of today, who has had his postgraduate work in a first class institution, has developed the fundamentals of good histories and has been taught to separate valuable from worthless information.

The art of selecting the important will make diagnosis of a difficult case a clear and easy process. The alert questioner is master of presenting queries and knows how to speak the language of the person addressed, be he child

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or adult. Tact is a big element in history taking; to be gentle; sympathetic and never ruthless; the patient, at ease, is willing to converse regarding his ailment, with no concealing of vital points, and if he uses incorrect terms in explaining symptoms, the Doctor is on guard against such misinformation.

Confusion regarding history records can be understood, when one office employs a chart the size of a postal card and another, a folder resembling a railroad time table, whereas both Doctors are of equal rank in the medical profession. What is the answer?

To procure the reaction of men throughout the country, I mailed a questionnaire. Following are a few of the responses:

Dr. Joseph C. Beck, Chicago, Ill.: "I place about 75% value in any case on the diagnosis and treatment. Secondly, yes, I use a special form. For the past twenty years I have used the booklet system with a follow up from day to day under a date capition, using red ink for laboratory and x-ray findings. If this type of history proves to be the most favored one, I expect to collect my premium."

Dr. Wells P. Eagleton, Newark, N. J.: "We attach the greatest importance to a proper history. A history of all cases is taken by a Secretary, who is well qualified by long training to take them. When the case is admitted to the hospital, this is repeated. It is a neurological history taken chronologically according to appearances of the symptoms. I devised a chart for the taking of these histories and introduced it in two hospitals where it has been adopted."

Dr. Arthur W. Proetz, St. Louis, Mo.: "It is my feeling that histories should be as complete as possible and that they should not be hampered or be directed into routine channels by printing routine items all over the sheet. To me, the art of medicine lies in the skill which a man may develop in extracting the necessary information from the patient in arriving at a diagnosis, and a questionnaire has the tendency to reduce this to a mere rote. A long time ago I used a history covered with a great many words which could merely be checked to designate findings, but gave it up."

Dr. Samuel Kopetzky, New York City, N. Y.: "I use no form in taking histories. I let the patient tell his story and then I ask questions to bring out the entire facts. I think histories are very important. I do not favor a history chart, because it is impossible to anticipate the lines along which inquiry will go."

Dr. Ellison L. Ross, Waukegan, Ill.: "Of course, I do not believe history taking can be overdone. Some point of histories may be the key to the diagnosis and treatment. However, I do not believe that it is practical for a man who must see a considerable number of patients daily to keep a detailed record of every history. For myself, I record very briefly the parts of the history immediately relevant to the complaint of the patient. The conditions are rather different when one is dealing with a very complex and serious case or when one is dealing with a class of practice which is capable and is willing to pay for everything that will contribute to its present and future improvement. Under these circumstances a detailed history should be recorded."

Dr. Harris P. Mosher, Boston, Mass.: "The longer I practice medicine, the more importance I place on a thorough history."

Dr. Horace Newhart, Minneapolis, Minn.: "We regard histories of the greatest importance in Otological, Rhinological and Laryngological cases goth in connection with chronic cases of hearing deficiency and in connection with complications of inflammatory diseases of the middle ear."

Dr. Ralph Almour, New York City, N. Y.: "I attach a great deal of importance to the history obtained from the patient, and I go into the minutest details. For this reason I do not use any special form of questionnaire. I have no fixed history chart. My histories are taken by myself, in person, and written down on a pad which is then transcribed by my secretary onto an ordinary typewritten index card."

Dr. Ralph A. Fenton, Portland, Oregon: "I consider taking of accurate histories very valuable in our work, and hand you herewith copies of the small forms which we have devised to make quick records possible. These are contained in an account folder, thus facilitating the storage of records."

Dr. Francis L. Lederer, Chicago, Ill.: "Needless to say, a history both from the standpoint of study and record is the most important part of a case. I feel that the personalized history is of the utmost value in the interpretation of the findings and in the diagnosis of a case. I mean by 'personalized,' the history that is recorded by the examining physician. It should be brief but pointed."

Dr. Samuel Iglauer, Cincinnati, Ohio: "I attach great importance to the history of the patient. The history is of special importance in eliciting hereditary diseases, allergic tendencies and a record of previous operations. In pulmonary disorders a standard question (usually omitted) should deal with the aspiration of foreign bodies. I do not use a special form of questionaire."

Dr. J. R. Lindsay, University of Chicago: "We do not use any special form of questionnaire. The histories on new patients and patients referred from other departments are taken by a resident staff member, who also makes the preliminary examination, after which the case is seen by a staff member who checks the history and examines. The training which the resident staff receives in history taking is therefore directed from the supervising staff member, rather than according to routine questionnaire. Regarding the importance of a good history taking in the specialty, I think one can say that a good history is of about the same importance in the special field as in general medicine and surgery. I have considered the advisability of using a questionnaire as a means of making sure that one would have all the information which one might want when later reviewing a group of histories, but decided to use the simpled type of chart instead and

rely more on close supervision in order to get good records."

Dr. H. I. Lilly, Mayo Clinic, Rochester, Minn.: "In regard to your inquiry I will say that I consider the history of an ear, nose and throat patient many times of far more value than anything that the objective examination might reveal. Here at the clinic, we have discarded the form type of history sheet because for one thing, it leads to carelessness in history taking and there is no form so comprehensive that it will include all the necessary details of the various conditions. As part of the training of the fellowship men, I insist upon them taking a good history. They are checked over carefully in this regard for a long time. Throughout the ear, nose and throat world, I think it is quite obvious that not enough attention is paid to careful history taking. This is one of my favorite 'sore spots.' In general medicine much depends upon the history and as I said above, I feel certain that in many ear, nose and throat conditions the history is far more important than the objective findings and that point cannot be too strongly emphasized."

The answer to "Why Histories" is well emphasized by these responses, and to the writers thereof, I wish to express my sincere thanks.

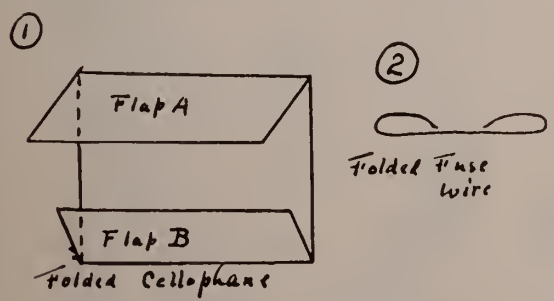
CELLOPHANE IN OPTHALMOLOGY

RALPH H. WOODS, M. D., F. A. C. S.

LA SALLE, ILL.

Each industrial community presents its own problems and each plant in that community has its individual considerations.

Those plants attempting to score in "no lost time" accidents fall in a category by themselves. Fortunately in our community most of these employees are young or middle aged and are accepted only after a close physical examination, and therefore trivial eye injuries heal with little difficulty and no complications.

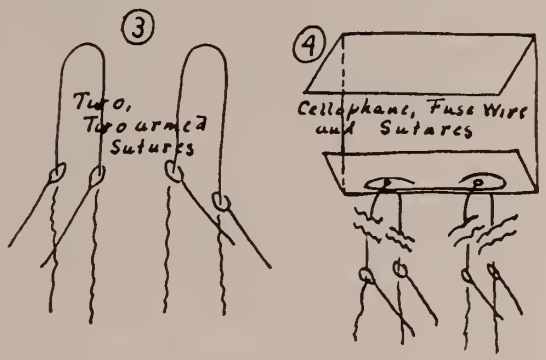


Recently a magnate case went through with no loss of time and no visual loss. Paradoxical but true.

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, at Peoria, May 19, 1937.

Because of their outdoor life and well living, railroaders lose little or no time from eye injuries.

Cement workers, before the institution of preventative measures, received many eye injuries



from hot cement in the sacking departments. There are still a few. While hot cement may denude the whole surface of the cornea, because it is sterile and not intensely corrosive, the wound heals rapidly without adhesions, loss of vision or loss of time. They may be quite painful for 24 hours. Butyn ointment solves this difficulty.

Molten zinc and type metal occasionally splash into the culdesac and may form a cast of the area contacted but because of its properties of quick cooling usually offers no adhesions and no complications unless the cornea is involved.

In our community zinc burns are an item of the past through the wholehearted diligence of the walking delegates. The plants are practically down and out.

Chemical burns, acid, lye and lime are the types that present the greatest complications and around which the closing paragraphs of this monograph are written.

Western Clock workers receive many foreign bodies on the cornea but they report even the most trivial injuries early and receive immediate inspection and treatment by an experienced oculist and because of this precaution there has not been a lost time accident or visual loss for some years in that plant employing 2,000 workers.

The Plow and Wheel workers while not entering any "no lost time" contests have been remarkably free from visual loss despite the frequency of eye injuries. This, in my opinion, is attributed, in part, to the fact that the plant surgeon, like the plant surgeons of the clock factory, zinc plants and mine, recognize their

limitations and refuse to even touch an eye. This policy has conserved vision and saved much money.

It is very evident that the eight hour working day has cut down visual losses materially because the shop and mine workers are enabled to absorb more sunlight and build up a better resistance.

Corneal ulcers from a traumatic source are those cases who failed to report for two or three days or those who were treated for a few days by an untrained person or one not skilled in ophthalmology.

The first twenty-four hours following an eye injury, no matter how trivial, is the most important period of treatment. The time to treat a corneal ulcer is before it starts. Corneal ulcers in industry cost big money.

Coal miners with eye injuries are the ones offering us our greatest worry. So many of them are old men who have worked down below 12 to 14 hours a day for years. Housing, manner of living, habits and previous diseases enter into the etiological picture.

There was a time when eye injuries from our coal mines cost more in compensation than all other injuries combined. There were two reasons for it, one was that the injured man failed to report early and secondly the lowered resistance of the individuals.

In the last two years every miner has been practically forced to report any injury as soon as he comes up and every mine eye injury, no matter how trivial, is sent to an experienced oculist who has orders to hospitalize without delay. Systemic as well as local treatment is instituted.

Nearly all eye conditions are merely symptoms of some constitutional derangement and by the same token any eye injury will of necessity be influenced by systemic abnormalities. Using this premise the following standing hospital orders were adopted and it is gratifying to note that visual losses and hospital bills of mine cases have been materially reduced in the last three years.

R. H. Woods, M. D.
La Salle, Ilinois:
Name of Employer ..... Check No. .....
Name of injured ..... Address .....
Age ..... Date of injury .....
Date of first treatment .....
Injury:



Fig. 1. Cellophane stitched in cul-de-sac.



Fig. 2. Protectant in neisserian

Treatment:
Hospital Orders:
Laboratory:
Smear and Culture.
White and Red Count.
Urinary.
Wassermann or Kahn.
General:
Bath, Bed, Catharsis.
Codliver Oil t.i.d. (palatable).
Body exposure to Quartz, daily.
High caloric tray.
Aspirin 5 gr. q 4 hrs. with Soda Bicarb.
10 c.c. Steril milk each 2nd day.
Local:
Hot Boric compresses, 1 hr. on, 1 hr. off, for 48 hrs.
25% Argyrol—followed by Boric wash.
¼% Zinc Sulph. Sol. q 2 hrs.
Atropine 2%, with caution.
See subsequent orders.
Signed .....

In lime, acid and alkali burns of the conjunctiva the success or failure of any treatment depends on keeping the surface of the globe and the lid separated.

Egg white coagulated by boiling (the membrane lining the shell of an egg) placed between the lid and the globe has been in vogue a long time. To be kept in place it must of necessity be stitched. This membrane is so friable one has some difficulty in handling and being a protein it may become a nidus for bacterial invasion.

Cellophane is constantly at hand. A piece removed from a cigarette package or a cigar wrapper, run through alcohol, washed in sterile water and cut to the desired size is all the preparation necessary. It is folded like the upper and lower flaps of an envelope. In placing in the culdesac the lower flap is towards the lid to avoid the raw edge contacting the cornea. The upper flap will then project through the palpebral fissure and fold down over the lid border.

A small spool of fine fuse wire (secured from any electrical house) should be constantly in one's surgical equipment. A piece of this wire is cut twice as long as needed, then the two ends folded inward to meet at the middle. This leaves no raw ends exposed.

Two, two armed silk sutures, not larger than No. 1, having been made ready, the fuse wire is placed in the lower fold of the cellophane and one arm of each suture passed through the cellophone over the fuse wire. Both arms of each suture are then passed through the lowest point of the culdesac to come out on the cheek, pulling the cellophane protectant in the desired place between the lid and globe. The sntures are threaded through two small buttons and loosely tied.

Inspection and cleansing are done daily without fear of disturbing the protectant. In five to seven days the surfaces are epithelized sufficiently to allow removal of the cellophane.

These eyes do better when not under bandage. It is therefore better even in corneal involvement to use only a light cotton pad, changed frequently. When the cornea is healed, leave the dressing off altogether.

No particular explanation is needed in the use of cellophane to protect the well eye in Neiserian infection. A cellophane cigarette wrapper is cut to size, half inch adhesive tape seals all but the temporal side. The photograph is completely explanatory.

This idea has been used several times in allergic folliculitis by sealing the eye or eyes on all sides to exclude outside air with fairly good success. One case was vernal catarrh.

Cellophane is also ideal in intranasal dressings following a submucous resection.

HEART DISEASE AND PREGNANCY

GERTRUDE ENGBRING, B.S., M.D.
DON C. SUTTON, M.D.
CHICAGO

The medical profession has long been concerned with the relations of heart disease and pregnancy. The complication is acknowledged; management still introduces the age old split into two camps, the conservative and the radical. Discussion of prognosis reveals optimistic reports of the last decade replacing the earlier pessimistic views, although nearly 30 years ago Osler[1] wrote: "Women bear valve lesions as a rule better than men, owing partly to the fact that they live quieter lives, partly to the less common involvement of the coronary arteries and to the greater frequency of the mitral lesion. Pregnancy and parturition are disturbing factors but are less serious than some writers would have us believe."

This paper is not based upon any controversial theory. It is a clinical study the material of which originates from the Pre-natal Cardiac Clinic, a division of the cardiac outpatient department of the Cook County Hospital,

Read before Section on Medicine, Illinois State Medical Society, May 18, 1937, Peoria.

Chicago. The period of time covered is one decade, July, 1926 to July, 1936. During these ten years 26,225 cases were admitted to the Pre-natal Clinics, of whom 1,400 were referred for special heart examinations. These cases were referred by the residents and attending men of the obstetrical department, one of the obstetrical staff, Dr. James E. Fitzgerald, being the chief of the Pre-natal Cardiac Clinic.

In 1934 Dr. Fitzgerald[2] reported a selected group of 126 cases of severe heart disease from this clinic. His paper stressed the obstetrical management and the results obtained. The present communication deals with the group as a consecutive whole and as such mirrors in a magnified scale the problems presented the individual doctor confronted by actual or possible heart disease complicated by pregnancy.

The group with which we are dealing is a fairly large one. Of the 26,225 cases, 11,670 or a little more than 44%, were white, and 14,554, or a little more than 55% were colored. Only about 5% of these cases, 1,400 in all, were referred to the Cardiac Clinic. It is worth noting that in these 1,400 referred cases the colored patients outnumbered the whites in the ratio of approximatey 2 to 1, although there was no such great disparity in the total whites and colored admitted to the Pre-natal Clinic.

TABLE 1

Total number of cases admitted to Cook County Hospital Pre-natal Clinic in Decade July 1, 1926 to 1936	26,225
White	11,670 or 44.6%
Colored	14,554 or 55.4%
Chinese	1
Total number of cases referred to Pre-natal Cardiac Clinic during the above decade	1,400
White	481 or 34.3%
Colored	881 or 62.9%
Chinese	1 or .071%
No record	37 or 2.6%

The length of observation varied from one visit to the whole ten years. Naturally, more cases rank in the shorter period of observation than in the longer. As a rough indication, 496 cases were observed for one year or more, and of these 112 were observed for a period of between 5 and 10 years. Our files are divided into active and inactive lists The inactive list, which includes cases discharged, transferred to private doctors or other clinics, and those that died or proved to be uncooperative, totalled 981 cases, as contrasted with 419 on the active list.

TABLE 2

Attendance record:	Active		Inactive	
	Number	Per cent.	Number	Per cent.
Once	66	13.36%	544	56.47%
6 months or less	139	33.17%	155	15.90%
1 year	42	10.02%	161	16.41%
2 years	31	7.39%	40	5.09%
3 years	31	7.39%	29	2.95%
4 years	25	5.96%	17	1.73%
5 years	22	5.25%	9	.91%
6 years	12	2.86%	6	.61%
7 years	17	4.05%	4	.40%
8 years	11	2.62%	1	.01%
9 years	7	1.67%	0	
10 years	7	1.67%	2	.02%
No period of time recorded	9	2.14%	4	.04%
Totals	419		981	

Ages of these 1,400 patients demonstrate vividly the predominance of youth in this, a charity practice. The ages are recorded in nearly 90% of the cases. One-fourth of the group is below the age of 20; the peak age coming at 18, 135 patients or 10% of all recorded. In the third decade the majority of births occur before the age of 25. Less than 2% occur over the age of 40.

TABLE 3

Ages of patients referred to the Pre-natal Cardiac Clinic.

Decade	Active	Inactive	Total	Percentages
Under 20 years	94	268	362	25.8%
20-30 years	202	443	645	46.2%
30-40 years	75	138	213	15.2%
40 years or over	13	13	26	1.8%
Age not given	35	119	154	11.0%
Totals	419	981	1,400	

Number of children varies from 1 to 12. The average is 2.45—the low figure probably being due to the number of primiparae in the clinic —460; i.e., almost one-third of the group.

TABLE 4

The complication of syphilis in the group was 7.15%—100 cases. These included the 1 and 2 plus as well as the 3 and 4 plus Kahn.

Number of Children	Number of Patients	Total number of children
1	460	460
2	247	494
3	158	474
4	85	340
5	57	285
6	33	198
7	26	182
8	8	64
9	7	63
10	1	10
12	3	36
	1 085	2,606
No record of children	315	
	1,400	

Average number of children 2.4.

TABLE 5

Number of Positive Kahns in Active Group..... 26
(I and II..... 11 III and IV..... 15)
Number of Positive Kahns in Inactive Group..... 74
100
(I and II..... 38 III and IV..... 36)

These data supply us with a sort of picture of the type of patient referred to the Pre-natal Cardiac Clinic; a group of women mostly young, twice as many negroes as white; averaging 2.5 children each; exhibiting a generally low coincidence of syphilis.

Not all of the 1,400 cases, when referred, were considered actual heart cases but evidence either in symptoms or physical findings were present to a degree sufficient to raise the question: Are we dealing with an organic or a functional lesion?

The reasons for referring were a positive history, either rheumatic or syphilitic; symptoms of possible or probable heart disease such as dyspnea, edema, chest pain, heart consciousness—physical findings of typical lesions, especially the rheumatic, murmurs, arhythmia, fever, or clinical signs of hyperthyroidism. It was recognized that in the later months, the 7th to 9th of pregnancy, the appearance of symptoms of possible heart disease would excite no especial consideration. However, the majority of admissions to the pre-natal clinic are about the 3rd months of pregnancy when the appearance of the above can scarcely be attributed to the mechanical factors acceptably present in the last trimester.

Of the 1400 cases referred to the Pre-natal Cardiac Clinic:

301 were classed as definite organic hearts.....21.6%
230 were discharged upon first visit as normal hearts 16.2%
520 were retained and followed because of systolic murmurs, in many instances complicated by arhythmias or consistent fever.....37.2%
349 as a miscellaneous group, accounted for by symptoms, arhythmias without murmurs, "fits and faints," etc.....25.0%

Reviewing a group of 822 cases admitted during a five year period, Hamilton and Kellogg noted a 25% incidence of true cardiac disease. In our 1400 cases we find 21.6%.

Classifying these hearts upon an etiological basis we found a total of 247 cases or 82% of rheumatic heart disease, versus a total of 54 or 18% of all the other groups combined. This preponderance is explained by a well known fact concerning rheumatic heart disease; they are the young hearts; ours is a clinic of young persons.

Before investigating this group in detail it may be expedient to discuss the use of the term mitral heart disease. The initial anatomical lesion in the developing mitral heart is a regurgitation. Especially White and his co-workers have shown that a period of approximately two years is required for the establishment of a stenosis.

TABLE 6

Total number of cases of Organic Heart Disease in 1,400 cases referred—301.

Mitral Heart Disease.....	226	75.08%	.....
	...	.....	82.06%
Combined Mitral and Aortic.....	21	6.98%	.....
Thyroid Heart Disease.....	27	.....	8.97%
Arteriosclerotic Heart Disease.....	14	.....	4.65%
Syphilitic Heart Disease.....	12	.....	4.32%
Congenital Heart Disease.....	1	.....	.33%

We believe, certainly for clinical purposes, that the stenotic lesion is the preponderant one and do not use the diagnosis mitral regurgitation. The term "mitral heart disease" includes both insufficiency and stenosis and as such is identical with the expression "double mitral." Where complications such as hypertension, severe anemia, the mechanical effects of an adhesive pericarditis intervene to affect the left ventricle then the factor of regurgitation may become prominent. So that at the beginning and at the end insufficiency plays a part. With all our stressing of the site and type of the lesion it is well to hold to the concept that the cause of decompensation and ultimate death is a process, not a thing.

In reviewing the characteristics of this group of 247 cases of rheumatic heart disease the following points are of interest. A positive history of rheumatic infection was obtained in 32% of the total 247 cases, rheumatic fever, as usual, leading the list. The ages in which infection occurred ranged from 4 to 20 years. In the active group where an intensive follow up on the question was possible the incidence was 42.4%, contrasted to the inactive group where the question put upon admission but not reiterated gave but a 20.3%. This is an example of how statistics may distort the facts.

TABLE 7

60 had rheumatic fever in childhood and early youth..24.63%
5 had chorea 2.02%
2 had chorea and rheumatic fever..... .08%
1 had rheumatic fever and scarlet fever..... .04%
6 had tonsilitis and frequent sore throats..... 2.40%
7 had scarlet fever with questionable rheumatic fever.. 2.83%

Total 32.00%

A point in reference to the racial and environmental factor may be worthy of comment. The majority of severe lesions are found in the white patient; bearing on this may be the fact that the infection occurs at an earlier age and recurrences are more common in the white than in the colored. Many of the latter spent their early childhood in the south rather than in the Chicago area. This may partly explain the difference. The living conditions and economic states of the white patient is in general superior to that of the colored.

The association of thyreotoxicosis with rheumatic heart disease, though reported as frequent as 9.5% in Maher's[3] review of heart disease in the Chicago area, occurred in eight cases or 3.2%. Again this may be explained by the young age of our average patient, since thyreotoxicosis elects the middle of the third decade as its optimum time of appearance.

Hypertension likewise is an infrequent complication, met with in but four cases. The high systolic pressure in the combined case where the aortic insufficiency is predominant is taken for granted as part of the lesion.

Syphilis was encountered in nine cases, two of which were combined lesions.

Fever of a low grade type, a consistent 99.6 to 100.4 occurred in 30 or 12.1% of cases. The sixteen cases in the active list were followed for an average period of 5½ years. The average age of the patient was 24½ years. With the exception of 2 cases considered as active rheumatic infections and 1 case of an unexplained secondary anemia, and 1 case, observed two years in which one focus of infection succeeded another, the remaining 26 cases presented no obvious reason for an elevated temperature. After showing a fever for months these cases presented neither the findings of a progressive valvular involvement nor the clinical evidence of a superimposed subacute bacterial endocarditis.

Auricular fibrillation beginning in pregnancy was encountered in two cases in this series. One, 25 years old, severe mitral heart disease, a para II, Grav. III, the second a para III aged 40 years; pregnant after an interval of 12 years; successfully delivered her 4th child after a 6 weeks pre-partum succeeded by a 6 weeks post-partum hospitalization. We have followed two cases who have had auricular fibrillation over four years. One beginning at 19 in a Para I; the other with onset at 40 years a Para VII. The latter has been chronically decompensated for 2 years, the past year bed-fast; the younger patient has had 3 decompensations with fairly rapid recoveries, is now doing her own housework and contrary to advice, has held a position during this past year requiring six hours of office work.

Five of the auricular fibrillations are dead within one year after onset. The ages of the above were 18-40-27-39-28. The first case ran a clinical course of a subacute bacterial endocarditis; the 39 year old patient, died suddenly with clinical symptoms of a cerebral accident; the remaining three presented the usual picture of decompensation.

In contrast to the rheumatic hearts the group of 14 cases of arteriosclerotic heart disease with hypertension included the relatively older patients. The average age on entrance to the clinic was 31.4 years. The high incidence of the colored, 12 against the 2 white patients, indicates the tendency of that race to hypertension under northern environment. The lowest blood pressure was 160/120, the highest 245/140. The absence of syphilis in the group is noteworthy. No history of infection and no positive serology was obtained in any case. The average number of children is four. There has been one death in this group, a colored patient aged 44 with an average blood pressure of 220/120.

The cardio-vascular syphilitics presenting the lesions of an aortitis in seven cases and an aortic regurgitation in five, were interesting, especially from the age viewpoint. The average age was 24; the mean number of children was 1.3; all had 4 plus Kahns when first coming under observation, except two who had received previous therapy still had a 1 and 2 plus. There has been one death in this group following a cholecystectomy.

Twenty-six cases of thyreotoxic heart were seen. Of these patients 17 were white and 9 colored. As in previous groups the early age incidence is worthy of comment. According to decades:

2 below the age of 20
19 between 20 and 30
5 between 30 and 33

The main symptoms of this group were tachycardia, palpitation, heart consciousness,

sense of exhaustion. In physical findings the high pulse pressure, low grade fever—90 to 100, palpable gland, frequent praecordial thrills and occasional premature systoles were noted. Since pregnancy itself increases the basal metabolic rate 15 to 25%, not too much stress was placed on elevation of rate alone. Our cases varied from a plus 5% to a plus 60%; the latter a colored primipara of 21 under antisyphilitic treatment—who delivered successfully but failed to report post-partum.

None of our cases developed in auricular fibrillation or became decompensated. Three cases who retained a plus 35% to a plus 47% B.M.R. and two cases associated with rheumatic heart disease were operated on postpartum.

Beside the organic hearts we are confronted by an interesting class presenting the elusive ambiguous symptom and finding characteristic of the possible cardiac.

The table given below presents the data of a sub-group whose common denominator is the presence, during pregnancy, of a definite often harsh systolic murmur.

Our incidence is 37.1%; 520 cases in a total of 1,400 patients. Of the associated arhythmias a reduplication of the second sound was found most frequently; premature contractions and consistent tachycardia occurred in an equal number. The large number of cases—104—showing an occasional to a consistent fever of 99.4 to 100 is a percentage of 20 versus 12% found in definite rheumatic heart disease.

TABLE 8

Total number of cases	1,400
Total number of systolic murmurs	520 or 37.1%
Total premature contractions	30
Total with reduplication of the 2nd sound	81
Total with temperature	104
Total with tachycardia	28

Occurring as a temporary finding only during pregnancy, explanation of the above findings, systolic murmur, mild arhythmias, tachycardia, is readily made upon the physiological changes occurring during gestation—the upward displacement of diaphragm, the increased blood volume and flow, placental circulation, the increased body bulk, the increased metabolic demands. Most authors report that these signs disappear immediately postpartum, but we find that they persist in the majority of our cases. Approximately 25% disappear—and 25% the murmur though remaining, diminished appreciably and the arhythmia became intermittent. Continued observation, with recourse in the exceptional case to laboratory examination, x-ray and electrocardiogram, has emphasized the importance of the following points in distinguishing the mild rheumatic from the innocent systolic murmurs and the purely functional heart. These criteria are; the percussion findings of straight left border; not necessarily an enlarged heart, a prominent pulmonary conus, an accentuated apical first sound, and an accentuation however slight of the second pulmonic. On the basis of these criteria we have transferred 32 cases into the mild, well compensated, mitral class. Another decade of observation, bringing these hearts into the 35-45 age decade will verify what may be today's assumption.

As a summary of these data, we find that of the 1,400 cases referred to the Pre-natal Cardiac Clinic, one in every eight was discharged at once as normal, rather more than one in every five suffered from definite organic lesions, chiefly rheumatic in character, and nearly two in every five had systolic murmurs, often accompanied with arhythmias or low fevers. Most of the rheumatic hearts were of young women, not much affected by hypertension, thyreotoxicosis or syphilitic infection. Naturally, the management of these cases varied with the conditions presented.

The care of the functional and questionable heart case includes a calming re-assurance assisted by mild sedatives. During pregnancy we think it wise to encourage frequent consultation because in the nervous type of patient this alone is therapy.

The management of real heart disease in pregnancy is a combined medical and obstetrical problem. Here, as in all cardiac care, prevention of heart failure is the aim. Three basic requirements in a program of prevention are: frequent observation of the patient, hospitalization or equal facilities for rest, and the recognition that the heart, not the pregnancy is to be treated.

In our experience the best test of cardiac function is the reaction of the circulation to the patient's usual activities. More important than the lesion is the myocardial reserve.

Fatigue is the earliest warning signal; dyspnea upon exertion, the use of two or more pillows, an increasing pulse rate, a slight cough, were con-

sidered significant of myocardial embarrassment and as such provided absolute indication for rest, addition to the ten hour night and the two hour midday rest period insisted upon as routine. If symptoms continued or warnings of more serious impending difficulties were observed, the patient was sent in to the ward. It has been said heart disease should be a rich man's disease—from the viewpoint of forgetting expense, as far as hospitalization costs were concerned—our patients fared as well as any wealthy patient. To this immediate rest, often not more than a week or ten days, and to the pre-delivery hospitalization which in one-third of our patients was made 3 to 24 days ante-partum, we attribute the main credit for our satisfactory results.

In medication the usual indications for digitalis, sedatives, Lugol's solution were followed.

During labor the routine sedative used was morphine grain ¼ and scopolamine grain 1/150 hypodermically. This was given to primaparas as soon as a 3 cm. dilatation occurred, and to multiparas when labor had definitely begun. All operative procedures were performed under ether anesthesia. No cesarean section was done on account of heart disease. Obstetrical complications alone dictated delivery by the abdominal rather than the vaginal route. One cesarean section has been performed for the purpose of sterilization.

Under this management there has been one death. This case was a Gravida II successfully delivered of her first baby, who had a bag induction at term and died six weeks postpartum. Autopsy revealed a malignant endocarditis.

In contrast, during the same period of time, 24 cases under no pre-natal supervision and admitted directly to the ward died. Of these 6 died undelivered and 18 died 10 hours to 11 days postpartum. Pre-natal care would have had no magical effect in preventing death in at least two of these cases; one a 26 year old white woman with a ruptured aneurysm—the other an extreme case where autopsy disclosed a foreign body in the heart—a piece of glass 1x3 inches in size.

In the last decade the observations of Daly, Hamilton and Kellogg, Nelson and Eades, and Reid uniformly support the conservatively optimistic outlook. Reid[4] expresses an opinion which is worthy of repetition, including as it does the answer to the question, "Does pregnancy shorten the life of the cardiac?" Reid says, "Patients with rheumatic heart disease die before their time, not because of pregnancy and parturition, but because of the natural evolution of the disease."

TABLE 8

Deaths: C.C.H. Obstetrical Service Decade July 1, 1926, to July 1, 1936.

Admitted directly to ward.	
No pre-natal care	24
6 died undelivered.	
18 died 10 hours to 11 days post-partum.	
Admitted through Pre-natal Clinic	1
Autopsy: Malignant endocarditis.	

Thirty-five to forty, indeed, is the critical age in any rheumatic heart beginning in childhood. But 95% of all births occur before the age of 40, and in a charity practice before the age of 35. Compiling birth statistics from two groups we found: In 1,000 consecutive births in Cook County Hospital from July to October, 1933, contrasted with 2,159 consecutive births in the Evanston General Hospital at Evanston, Illinois, the clientele of which comes from the exclusive north shore suburbs of Chicago, the most noteworthy difference was the 20.2% of the charity practice against the 2% of the private cases of births occurring before the age of 20. Over 40, the low incidence of less than 3% prevails in both groups.

TABLE 9

Cook County Hospital—1,000 cases—births from July 1, 1933, to October 1, 1933.

Youngest 14 years—Oldest 45 years.

Age	Number	Percentage
14-20	202	20.2%
20-30	571	57.1%
30-40	199	19.9%
40 or over	28	2.8%

Evanston General Hospital—2,159 consecutive births from November, 1931, to November, 1934.

Age	Number	Percentage
Under 20	40	1.85%
20-30	1,146	52.13%
30-40	642	39.00%
40-47	50	2.3%
Age not given	90	4.1%

The deaths in rheumatic heart disease—and we stress this because it represents the main group encountered in the consideration of heart disease and pregnancy—occur between 35 and 45.

Reviewing mitral heart disease in the general cardiac clinic at the County Hospital in a group of 118 women with no pregnancies, compared to 79 cases with pregnancy, we found the death rate

per decade to be higher in the single woman than in those who had borne children; the immediate rise after the age of 40 is conspicuous.

The evidence of these facts indicate two conclusions: Compensated cardiac disease is no contra-indication to marriage and child-bearing. Adequate pre-natal supervision, vaginal delivery in the absence of obstetrical indications, contributes definitely toward a favorable outcome.

TABLE 10

Mitral Heart Disease: Cook County Hospital—Cardiac Clinic. No Pregnancies.

Total cases—118. Deaths—20. Percentage of deaths—17%.

Decades	Act. Cases	Inact. Cases	Total	No. of Deaths	% of Deaths	% per Decade
20-30	31	19	50	5	10%	23.8%
30-40	20	11	31	5	16.1%	23.8%
40-50	27	10	37	10	27%	47.6%

Pregnancies.

Total cases—79. Deaths—11. Percentage of deaths—14%

Decades	Act. Cases	Inact. Cases	Total	No. of Deaths	% of Deaths	% per Decade
20-30	6	4	10	1	10%	9.9%
30-40	16	13	29	3	10.3%	27.2%
40-50	25	15	40	7	17.7%	63.6%

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From the Cardiac Follow-up Clinic at Cook County Hospital, Chicago. Don C. Sutton, Professor of Medicine, Northwestern University Medical School, and Gertrude M. Engbring, Instructor in Medicine, Loyola University Medical School.

DISCUSSION

Dr. Don C. Sutton, Chicago: My interest in this subject has been that frequently in private practice we see cardiacs and non-cardiacs who have been advised not to marry and if they marry never to have children. I think the chief thing this study brings out is that even definite heart disease in a woman is not a contra-indication to either marriage or childbearing, and particularly so if those patients are taken care of properly. Out of this group only one-third are true cardiacs. Nevertheless, every one was referred to the cardiac clinic and they were referred for reasons that are generally used as evidence of heart disease. One-third of these patients have a systolic murmur and in this group of patients all other evidence of heart disease is absent. If you rely only on the presence of a murmur, you would call them organic heart disease. Every valvular lesion is accompanied by change in shape of the heart and usually in size of specific chambers of the heart.

The diagnosis of a vavular lesion should never rest upon the finding of a murmur only.

ACUTE INFECTIONS OF THE PHARYNX AND LARYNX

WALTER STEVENSON, M. D., F. A. C. S.
QUINCY, ILL.

A limited discussion of infections of the pharynx and larynx can refer only casually to some of the commoner acute infections of these regions. Therefore, my purpose is to dwell at as much length as possible on the severe infections.

The mild infections are simply mentioned to state that most of them are either the beginning of, or are associated with acute upper respiratory infections and run a definite course and subside without complications. They are usually prevalent in colder seasons, are sometimes epidemic and are best treated by rest in bed. Occasionally it is necessary to use antipyretics, sometimes the use of analgesic drugs is required, but rest and maintenance of body fluid balance is about all that is necessary. It has been said that a cold can be cured in one week by the use of drugs, sprays, etc., but that untreated it gets well in seven days. So far as local measures are concerned, I like to use a solution recommended to me by Dr. Gabriel Tucker. It is composed of 25% tincture guaiac, 25% tincture iodine and 50% tincture benzoin compound. This is painted on the surface of the inflamed area several times daily. Hot gargles are probably ineffective, but are used in the form of hot, five per cent solutions of bicarbonate of soda. Oil of pine, menthol, compound tincture of benzoin volatilized in steam and inhaled by the patient are distinctly pleasant and comforting. In acute laryngitis, instillations by indirect mirror guidance are helpful. I know of no better medicament for these than the solution of mono-p-chlorophenol recommended by Jackson. Astringents such as silver nitrate are contraindicated.

Epidemic Pharyngitis. Pseudomembranous infection of the pharynx, caused by the streptococcus or pneumococcus is frequently seen in epidemic form, often as a result of contaminated milk. I know of no specific treatment, other than supportive measures combined with local antiseptics and anodynes. The laboratory examination, of course, decides the diagnosis. If pneu-

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mococci, type one and two be present, then it is logical to use Felton's antipneumococcic serum with local applications of solutions of optochin.

Parapharyngeal Infections. Any reference to severe infections of the pharynx should contain some remarks about the fascial planes of the neck. You are familiar with these and time does not permit more than to say that I have always had the impression that every fascial sheath of the neck, except the superficial one, is potentially a funnel emptying into the mediastinal spaces. If that impression is kept in mind one realizes how important early and adequate drainage is to a successful outcome. However, I do not mean to state that many infections of the neck do not recover when treated conservatively; they often do. On the other hand the possibility of fatal complications is so great that surgical measures seem wise in every case. From a surgical standpoint, the pharyngomaxillary, or better, the parapharyngeal space is divided into two compartments—the anterior extending from the base of the skull, only to the level of the mandible angle—while the posterior extends to the thorax. The anterior contains only a few lymph glands and is a potential space, the posterior being the carotid sheath. The anterior compartment is in direct relation laterally to the pterygoid muscles. This is important from a diagnostic standpoint because of the associated trismus when the space is infected.

Infections of the space are usually tonsillar or pharyngeal in origin. They may complicate diseases of the nose, ear, parotid gland, cervical vertebrae and adenoids. They can follow penetration by an injection needle in tonsillectomy. There is a deficiency in the buccopharyngeal wall between the posterior edge of the mylohyoid muscle and the anterior edge of the middle constrictor muscle of the pharynx, through which this space can be drained into the mouth. One can reach the pharyngomaxillary fossa through this deficiency by a small incision in the floor of the mouth and extension of the incision by blunt dissection. Most of these abscesses are reached best by the external route. However, as Mosher has aptly stated, "All pathways lead to death, but none so surely as infections about the neck." All thought of cosmetic damage must be dismissed and drainage instituted thoroughly and early enough to prevent downward extension to the mediastinal spaces. Preliminary or prophylactic mediastinotomy seems somewhat drastic to me. Yet when mediastinatis seems a probable complication, this may be good surgery.

Ludwig's Angina. This is an infection of the floor of the mouth which may be caused by pharyngeal infection traveling forward through the deficiency mentioned heretofore, but it is usually due to infections about the molar teeth, the submaxillary and sublingual glands or secondary to an impacted salivary calculus. Infections in the mouth may cause pharyngeal infections through the same deficiency. They are best drained externally by wide incision and separation of the mylohyoid muscle. It is safe sometimes, however, to incise the mucous membrane of the oral floor and bluntly dissect to the abscess.

Retropharyngeal Abscess. One of the most serious infections of the pharynx is retropharyngeal abscess. In retrospect the average laryngologist probably considers retropharyngeal abscess as a disease easily diagnosed, which causes great discomfort but which is associated with only a moderate degree of alarming symptoms. The fact that most of these terminate easily and successfully when the abscess is drained accounts for this complacent attitude. Many years ago it was felt that this disease was always secondary to Pott's disease of the cervical vertebrae. Such is not the case, for the majority of cases do not show that etiology. They may be due to tuberculosis of the base of the skull or of the vertebrae. If in the midline one can be reasonably sure of an acute pyogenic abscess because the lymph nodes are only present in midline — if lateral, tuberculosis may be suspected. Acute pyogenic infection is rare after four to six years of age, because the retropharyngeal lymph nodes disappear after that age. They are usually due to infectious processes of the teeth, tonsils, middle ear, sinuses and nose. Often foreign bodies or injuries may cause them; they may be secondary to cervical adenitis, while most of them are like Topsy, "they just grow." The offending organism usually is the streptococcus, although any pyogenic organism may produce it. It is a disease carrying a rather high mortality, various authors gave the rate of death at from four to eight per cent. It is preceded by a varying period of illness not concerned with the disease itself and followed by a degree of dyspnea and dysphagia—depending upon its location. The higher the abscess, the greater the dysphagia,

the lower the location, the greater the dyspnea. Indeed, at times, the laryngeal aperture is almost occluded by the tumor or by an associated edema of the base of the tongue, the epiglottis and even of the endolaryngeal structures. It is essentially a disease of childhood and infancy. Cervical adenitis is always present and accounts for the characteristic poise of the head. Torticollis has been mistaken for it. I sometimes think that, given a child gravely ill and with the neck rigidly stiff and head inclined to one side, a diagnosis of some form of pharyngeal abscess can be made on these symptoms alone. X-ray should be used as a diagnostic measure. It will disclose not only an abscess, but the condition of the bone of the spine as well. One should be very circumspect in making drastic direct examinations. I have known a child to die promptly during palpation of the throat when this disease was present. Surgical drainage is the only rational treatment. However, it should not be instituted too early. Until the area has become circumscribed and fluctuant, danger of blood stream infection may be caused by too early incision. Anesthesia should not be used, yet in appropriate cases without much dyspnea, I see little objection to avertin. I place the patient in an exaggerated Rose position and prior to incision of the abscess, use a trocar to which is attached adequate suction. Following this the abscess is carefully and widely opened by blunt dissection. Little, if any, after care is required. If the x-ray discloses an associated tuberculosis of the spine, the drainage should be external. As pointed out by Salinger and others, there is grave danger of sudden death from hemorrhage in these deep abscesses of the pharynx, whether they be retropharyngeal, parapharyngeal or peritonsillar. Usually one is forewarned of this by repeated small hemorrhages. Statistics show that immediate ligation of the common carotid is the only treatment, despite the fact that a definite number of ligations are followed by serious brain complications. There is real danger of suffocation by aspiration of the abscess contents, unless scrupulous care is taken to prevent it during operation. Impending laryngeal obstruction calls for tracheotomy before incision and in any case of deep infection of the neck immediate availability of a tracheotomy set is required. Sudden death in these cases is usually unexplained, but may be due to pressure and manipulation against the pharyngeal wall, with vagus nerve inhibition—whatever that may be—therefore, manipulations should be carefully and gently made.

Laryngeal Stridor. Hoarseness and stridor call for immediate examination of the larynx. This is easily accomplished in the adult by indirect examination and that method is sometimes also possible in the child and infant. However, there can be no valid reason for inexact information regarding the condition of the endolaryngeal structures. I have often said that direct examination of the larynx is as easy if not an easier procedure than an opthalmoscopic examination. Anyone professing to be a laryngologist should be able quickly to expose the larynx in an infant or child and neither local nor general anesthesia is necessary. Having exposed these structures one may take direct swabs for laboratory examination and gain essential information as to the size of the glottic aperture. It is well to bear in mind the causes of stridor in children. They are:

1. Congenital laryngismus stridulus due to underdevelopment of the cartilaginous box—also known as atony of the larynx. This is the most frequent cause of stridor in infancy and can be diagnosed only by direct inspection.
2. Laryngismus stridulus or spasmophilia due to calcium deficiency.
3. Laryngitis stridulosa, false croup, acute catarrhal laryngitis.
4. Membranous laryngitis.
5. Foreign bodies.
6. Papillomata.
7. Congenital paralysis of recurrent nerves.
8. The possibility of thymic stridor. This so-called syndrome is rapidly being relegated to the museum of myths.

Membranous Non-Diphtheritic Laryngitis. I should like to call attention to a type of membranous non-diphtheritic laryngitis which in certain years seems to be epidemic. It is a descending infection which finally reaches the terminal bronchioles causing areas of atelectasis with eventual suffocation and which results in a terrific mortality rate. I know of no disease which so taxes the ingenuity of the physician, and which in its very inception seems to present a hopeless outlook. Truly these are ghastly cases. The disease can be recognized by the membrane and is differentiated from diphtheria by the peculiar

gluey, brownish, tenacious crust. Increasing stridor is always present and tracheotomy should be instituted early, before irreparable damage has been done to the heart. There is a peculiar pale cyanosis which is a definite indication for tracheotomy. Intubation has been recommended, but is not advised. Early tracheotomy is not a serious procedure and the mortality attributed to it is due in great part, to injudicious procrastination. For those not accustomed to this procedure, I will suggest a simple technique. With the head and neck in midline position the trachea can be located quickly and easily with a hypodermic syringe and a twenty gauge needle plunged into the midline. Immediately after the skin has been pierced the plunger of the syringe is slightly withdrawn and if a small amount of sterile water is in the syringe bubbles of air announce entrance into the trachea. The needle can be followed by dissection easily and quickly. A recent contribution by Chamberlin emphasized the use of the Mosher life saving tube. To those familiar with its use, I commend a small bronchoscope for the same purpose. After care of these little patients requires almost constant attendance of a trained physician. Death is always by suffocation due to the crusting of the exudate. These can be removed by suction through a catheter, following instillations of adrenalin; perborate solution has been advised to loosen them; bronchoscopy through the tracheal wound is frequently required to remove the crusts. If one can keep ahead of the crusts until the virulence of the streptococcus infection has subsided, a few of these cases will recover—but the outlook is most disheartening.

Peritonsillar Abscess. Peritonsillar abscess and its management are well worth consideration. I know of few conditions more distressing to the patient. Again, a period of judicious watchful waiting for abscess formation is worth while. Many advise early incision in the peritonsillar area, feeling that depletion caused by free bleeding is helpful and that sooner or later the abscess will drain into the tract of the incision. This has neither been my experience, nor practice. I always wait until I feel reasonably sure that the pocket can be entered. Practically painless incisions may be made in these cases if the sphenopalatine ganglion is anesthetized thoroughly. I called attention to this many years ago and Guttman has written in detail regarding the method. Peritonsillar abscess is a serious affair and when the process has subsided the tonsil should be removed completely to avoid recurrence. Usually a peritonsillar abscess forms above the tonsil in the soft palate, but occasionally will invade the structures posterior or lateral to the tonsil and it is these which are difficult to locate. A nick in the membrane imdiately posterior to the tonsil, followed by blunt forcep search, will usually drain the cavity, or by dissection into the anterior compartment of the parapharyngeal space. These are usually parapharyngeal space infections.

Post Operative Infections. Infections of the pharynx following removal of adenoids and tonsils is a very rare complication. The wide open wound affords such good drainage and the excellent blood supply accounts for this fortunate rarity. I have seen several peritonsillar infections with abscess formation, following local anesthesia injection. An infection of the tissues about the base of the tongue following tonsillectomy may be alarming at times, but usually subsides without abscess.

Diphtheria — Vincent's Angina. Vincent's angina and diphtheria are mentioned to stress the importance of throat cultures. The presence of diphtheritic organisms calls for immediate use of adequate doses of diphtheria antitoxin. It should be remembered that the earlier it is used the more efficient is its action; investigations have shown that after the third day of the infection the serum has little if any effect. In Vincent's disease I have not been particularly impressed with the efficacy of antiluetic medication, either locally or intravenously, but I do rely almost entirely on oxygen producing drugs, such as perborate of soda and peroxide of hydrogen. A recent article by McNichols has called attention to the fact that peroxide of hydrogen gives the best result in the treatment of this disease. Meticulous cleansing of the teeth by a dentist is most important. Vincent's ulceration about the mouth and pharynx can, at times, be extremely grave.

Infectious Mononucleois: Better known as acute glandular fever, this disease occasionally has its inception in the throat and mouth as ulcerative lesions. Indeed, often a type of pyorrhea is present. The disease is diagnosed by generalized enlargement of the lymph glands,

particularly cervical, axillary and inguinal. The disease is accompanied by a slight fever. The diagnosis is easily made by blood smear, a preponderance of mononuclear cells being present.

Treatment is unnecessary and the disease subsides in ten days to two weeks.

Agranulocytosis. One must always be on the lookout for throat manifestations of malignant neutropenia or agranulocytosis. In these cases I do not know, but I doubt, if the lesions described in the literature as typical of this disease and as initial are the cause. I am inclined to feel that they are merely secondary infections due to lowered resistance. It has been said that the typical lesion is a small ulcer on the anterior palate. Some of the cases I have seen presented ulceration about the teeth and oral mucous membrane. Others have shown a general dusky redness of the fauces with a tendency to pendulous edema, even extending into the larynx and finally calling for tracheotomy. A blood count quickly decides the diagnosis, but what next to do taxes the resources of internist and laryngologist. I have known of one case to recover after the use of pentnucleotide and another with the use of yellow bone marrow. If the blood count discloses the presence of many immature granular cells it is said that pentnucleotide assists in further release of these cells; however, if there is an aplasia of these cells and no immature cells are present, it seems that yellow bone marrow gives better results, since it is supposed to stimulate the production of these cells. If drugs containing the benzine ring cause the disease, perhaps our new friend allergy comes into the picture; certainly many individuals can ingest large quantities of these drugs and not develop agranulocytosis.

Abscess of Larynx. Abscess of the larynx is seen following debilitating diseases and at the time when typhoid fever was prevalent it was not uncommon. It has followed the use of radium and excessive x-ray therapy. It may be diagnosed by indirect examination, palpation through the mouth and sometimes fluctuation may be felt over the cartilage. Exploration with a needle has been suggested. If the abscess point is in the pyriform sinus or in the ventricular band, it may be drained by indirect procedure or through direct laryngoscopy. If, however, it has traveled downward and the cartilages are involved it must be drained externally.

Finally, I would emphasize the importance of general medical care, supportive measures and nursing. Relief of pain is of utmost importance and local measures failing, morphine should be freely used. Patients with pharyngeal and laryngeal infections are more comfortable in moist atmospheres. Haslinger has stressed the use of steam saturated with bicarbonate of soda. A prescription containing anesthesine is often quite worth while. This is placed on the tongue in dry form and allowed to dissolve. We must not fail to think of some of the newer antiseptics, such as solfanilamide. These are now being used extensively in the treatment of streptococcic infections and we may expect early evaluation of them. The use of convalescent streptococcus serum has certainly given very promising results. Mention should be made of the use of x-ray in infections of this type. I have recently had some very good results following therapeutic doses of x-ray. Lymphocytes, of all body cells, are the most sensitive to x-ray. They regularly accompany the infiltration of acute infections and are the first destroyed by x-ray; even as soon as twenty minutes. Early disintegration of lymphocytes takes place with relief of pressure and thereby of pain. Nuclear chromatim is dispersed and continues for several days, causing increased phagocytosis. The polymorphonuclears and eosinophiles undergo a similar but belated disintegration. In addition to the destruction of the lymphocytes and promotion of phagocytosis, roentgen rays are believed to liberate enzymes, antibodies and unknown principles which promote autolysis and liquefaction. Something should be said about short wave diathermy. A recent article by Laszlo indicated that relief of pain, prompt resolution of local infections or definite speeding up of abscess formation takes place in a considerable number of cases. He further stated that by this method many pharyngeal abscesses may be aborted. Adequate laboratory examination regarding the cytologic, the hemoglobin, calcium and chloride contents of the blood is most important. Blood transfusion, glucose intravenously and saline used intravenously or subcutaneously are life sustaining and saving measures and when indicated must not be omitted.

Each one of these conditions is an individual problem. One must learn not to be dogmatic nor

to swing too far with the pendulum of conservatism or radicalism. There are many things to do besides surgery. How to pick one case as surgical from another that is not, is a problem which requires careful consideration of all of the clinical, objective and subjective symptoms. A final decision results from that intangible something which comes only with long years of experience and observation.

W. C. U. Bldg.

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ELECTRICAL ACCIDENTS, SHOCK, BURNS AND GLARE INJURY TO EYES

HART ELLIS FISHER, M.D., F.A.C.S.
Chief Surgeon
Chicago Rapid Transit Co.

CHICAGO

Burns, whether thermal, chemical or electrical, are to my mind one of the most neglected surgical conditions that we have to contend with today. The average medical man seems indifferent to this class of work. It is many times relegated to the interne or nurse to apply the therapy. As regards the treatment, for the greater part, they are treated alike and oils, ointments and commercial burn dressings seems to be the method of choice. This is not intended as an indictment of my brother physicians and surgeons but my desire is wholly in the form of a plea for a more scientific way of meeting this condition and that more research will be forthcoming. May we not some day have a standard of burn therapy as we have in the treatment of fractures today.

We should not lose sight of the fact, that each burn case is quite different and individualization should be the aim rather than using a generalized form of treatment. Indifference in burn therapy, results in a prolonged convalescence for the patient, with a resultant economic loss to both employe and employer. Infections, contractures, unsightly scars and impaired function are further results of improper technique. Many times after recovery from the initial burn, considerable reconstruction and plastic surgery is necessary for both cosmetic and functional restoration. Much of this, the patient might be spared, had a more close observation been given during the early stages of the disability.

Regardless of the origin of the burn, they are due to heat of one nature or another. The resultant destruction of the part involved may be superficial or deep. The skin may be only reddened or entire skin with the underlying structures may be destroyed by actual cremation. We may classify these burns into first, second and third degree. First degree with simple scorching of the skin as evidenced by reddening of the surface. Second degree, where there is bleb or blister formation with exudation of serum. Third degree where the entire skin thickness is destroyed and also some destruction of the underlying tissues. This class of burn may involve the muscles, nerves, blood vessels and even the bone itself. In some cases an entire part or extremity may be amputated by the burn.

It has been said that the pathology present and treatment of all burns are generally speaking, alike. Electrical burns are the result of some part of a person's anatomy contacting an electrical conductor, with an arcing of the current which produces a very high temperature, causing various degrees of tissue destruction. The heat generated is enormous. I believe my assertion will not be denied, that on account of the terrific heat generated in electrical burns, we have far greater tissue destruction both in extent and depth. At first observation these burns may appear trivial and superficial; a few days later witness a breaking down of tissue which formerly

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appeared normal. Again these burns extend over a arge area of the body and despite their hopeless appearance, many times make an uneventful recovery. It is necessary that we be guarded in our early prognosis.

Another factor that makes for severity in electric burns is the often accompanying electric shock at time of contact with the electrical conductor. This in itself often accounts for the resulting fatality in a patient who was only slightly burned. This electric shock is many times more severe than the traumatic shock that follows other classes of burns. Not all electrical burn cases receive an accompanying shock but the average is of frequent occurrence to give this important consideration.

It has been frequently stated, that all burns may be regarded as infected wounds and with this I do not hesitate to take issue. From my own experience over a period of twenty years with observation of hundreds of electrification cases and at least a thousand electric burn cases, we are lead to believe, that after the initial burning, these wounds are practically germ free. This is due to the tremendous heat present at time of current arcing which practically sterilizes the wound. On account of dehydration of the tissues due to the burn, the absorption factor of the tissues are greatly lessened and there is less danger of infection due to this lack of absorption. Those infections that appear at a later date, after normal tissue absorption has returned to normal, are to my mind, due to the bunglesome first aid services rendered in many cases by layman first aid men. The needless handling and frequent dressing changes, coupled with the common use of greasy dressings, account for the many infections that later develop.

The type of current, direct or alternating, makes little difference as to the severity of the burn. In the former the voltage is much less than in the alternating. 600 volts is the most common used in industry of direct current while in industry alternating current is used from 110 volts up to 100,000 volts and over. We have seen patients burned with the low voltage direct current who were burned just as severe as those of high alternating current. In low voltage current, there is always the possibility of fatal outcome due to the action of the current on the heart, producing ventricular fibrillation.

Neglect of the proper treatment in small superficial burns have later developed into serious complications with loss of an anatomical part and even in death.

The question is often asked, as to the cause of the multiple burns so often found in electrical accidents upon the patient. This is due to the fact, that when electrified, the patient is thrown about causing various parts of their body to contact the conductor or the ground. When the make and break with the current is made there is always an arc and the part in contact will be burned. Generally the point of entrance and exit will show the most severe burns.

Another factor that determines the severity of burns is the condition of the person's skin as to whether it is wet or dry. If the skin surfaces are dry, the current meets with greater resistance and heat is generated to a greater degree and the destruction is in proportion to this heat. When the skin is wet, it offers but slight resistance to the passage of the current. In these cases, destruction may be very little but if the contacts with the electrical conductor are not firm then the burns are apt to be more severe. The skin of women and children being of a finer texture and usually moist, readily allow the entrance of the current into the body through the lowered skin resistance.

The palms of the workingman's hands are generally calloused, more dry and offer greater resistance to the current passage. Areas rich in vascular supply permits of easy entrance of the current to the body. While more of the current may enter the body through low skin resistance, the greater will be the shock to the patient. In industry, the greater number of burns are on the workingman's hands as from the nature of their work, the hands are more liable to contact the current than any other part of their body. Burns are more prevalent in the summer months. This is due to the fact that this time is that in which there is the greatest industrial activity in the electrical field. The severity of the electric shock is greater due to the perspiration soaked person having a lower skin resistance to the current. The burns received at this time also show increased severity. The longer the person is in contact with the current, the greater the severity of shock as well as the greater the destruction of tissue. In this event,

the tissues are charred and actual cremation may result.

The electrical current passing through the skin is transformed into heat and this alters those structures in the pathway of the current. There is produced, the so-called current markings on the skin that are considered of diagnostic value if present, as to electrification. The appearance of the current markings are usually linear in outline and elevated above the surrounding skin surface. . . There is a small indentation in the center of the skin marking which extends down into the skin. The color is a pale grayish yellow or tan. They may be black. Small metallic particles may be seen adhering to the skin surface and come from the metal electric conductor.

These markings for the greater part are painless and there is very little if any inflammatory reaction. This tissue undergoes a break down process, slowly necrosing without pus formation. After sloughing, there is a clean pink area of granulations which result in a soft scar formation. These markings are found about the burned area and where the burns are deep, we have a dry, dehydrated appearance of the wounds. There is present a grayish yellow or blackish appearance to the burned surface. These burns while severe are very often free of pain. They are irregular in outline and appear self limiting. It is difficult to determine the depth of the burn or its extent. Little do we know the extent of the damage done by the heat to the underlying structures. For this reason, any attempt at surgery, may lead to hemorrhage, that will be difficult to control. Very seldom will one find an actual hemorrhage in the burn but close observation is essential, to detect secondary bleeding after the blood pressure rises and reaction has set in. About the current markings as well as about the burns we will find edema which may be localized or extensive. The cause of this edema is not known but may be attributed to reaction to the heat.

In addition to the skin lesions, we have other conditions to meet, such as unconsciousness which may be due to a partial block or inhibition of the central nervous system with a resultant paralysis of respiration. We may have a heart block or ventricular fibrillation present, which is fatal. Many times there is only a temporary suspended animation and all that is required, is the institution of some form of artificial respiration at once and persisted in over a long period of time. As this paper is of burn complications of electrical accidents, we will not take up the therapy of electrification but get along to the treatment of burns.

The cardinal features to keep in mind, in burn therapy, are the prevention of dehydration that is always present after electrification and severe electric burns. Likewise of utmost importance, is the reduction of the high blood concentration so often present. Both of these conditions are due to the depletion of the fluid content of the body and the loss of blood serum from the wide open capillaries. Another feature to keep in mind, is the maintaining of wound asepsis and the prevention of infection of the wounds. With these conditions met, we direct our attention toward the promotion of epithelization of the burned area and the encouragement of healthy granulations. Our last efforts are directed toward correction of any contractures, undue scarring or complications that have developed despite our efforts.

All burns pass through three stages of tissue repair. That of a form of dermatitis with redness, pain and swelling, to be followed by a period of exudation of serum with blister formation. The last stage is that of cicatrization characterized by granulation, contractures and scar formation.

It is not the intention of this paper to tell you gentlemen here assembled, what technique or therapy you should use in the treatment of your burn cases but simply to bring to your attention some of the things that have been successful in our past experience. What success we have enjoyed is attributed entirely to studying those contributions of other surgeons whose results we have aimed to emulate. As before stated, no two burns are alike and the treatment of choice must fit the case in hand. The therapy should be divided into first aid in the field (many times by the layman) and subsequent emergency treatment by the surgeon in the home or hospital. The final treatment is directed toward the complications arising during the period of recovery.

In the companies with which I am affiliated, it has been deemed necessary that we train cer-

tain employees in first aid services, so that whatever injuries are sustained in the field by an employee, there will be some one present to apply proceedures necessary to prevent contamination of wounds and from possibility of further damage in the transportation of the injured to medical authority or to a hospital.

We have a simple burn routine for use in the field that is employed solely between the time of injury and transportation of the patient to the physician. The application of sterile petrolatum from tubes to the wound and the tubes are used once and discarded.

These first and second degree burns are covered then with sterile gauze and lightly bandaged. If the burns are deep and extensive, usually a posterior splint is applied for support of the extremity in transportation. In all third degree burns, the area is covered with sterile fluffy gauze and bandaged. All cases are carried to the surgeon instead of calling them to the scene of the accident as many valuable minutes are saved by this procedure and meets with the approval of our associate surgeons. Many times it is almost impossible to secure a doctor at the scene of accident and if available a time must elapse before his arrival so we believe it much to the patient's interest to shorten the interval between the accident and the surgical attention.

If ointments and greasy dressings are used on third degree burns it causes undue pain in their removal if we are to make use of the tannic acid treatment in the hospital. The use of these ointments often favor the growth of bacteria. They are mussy both to the patient and the bed linen is always soiled with the grease. We are not always positive that the ointments and oil used is sterile and not contaminated from previous use as so often found in hospitals. Our own method of treatment in the hospital for first and second degree burns is the application of sterile petrolatum on sterile gauze. We also use a sodium bicarbonate wet dressing in some of our cases and as indicated picric acid dressings. We have come to the belief that picric acid is indicated only in the first twenty-four hours and that if used promiscuously that toxic symptoms such as delirium, nausea, vomiting, restlessness, stupor, etc., often develop. With the cessation of picric acid these symptoms disappear. Besides the coloration that persists after the use of picric acid, especially about the face, is objectionable as it many times remains long after the burn is healed.

In all severe burns we treat by immediate rest in bed with complete relaxation and freedom from pain secured by the use of morphine. The patient is placed upon sterile sheets, dressed in a sterile gown. Sterile sheets are placed over a bed cradle to prevent pressure of coverings on the patient.

Shock is at once combatted by the elevation of the head of the bed. Heat is provided by the use of carbon electric lights protected so as not to contact the patient and placed under the cradle. Hot water bags placed about the patient to maintain the body heat. Stimulation is indicated often to support the heart and your favorite drug may be used as indicated. The fluid content of the body should be replenished as soon as possible, either by the oral administration of fluids or by way of the veins. The continuous drip method per rectum is ideal and will be borne much better then trying to have the patient drink as, though thirsty, water does not seem to satisfy. The use of sodium bicarbonate is of value in the restoration of the alkaline balance of the body. Intravenous glucose and saline is of great value as well as the transfusion of blood, when the patient's condition warrant. It is better many times to anticipate possible conditions and institute these intravenous medications then to wait until the patient's condition make their use imperative.

Local application of tannic acid 2-5% solution is applied on fluffy gauze but I personally prefer the use of the sprayng on of the tannic acid and dried by the use of a hot air blower. If the burn is so situated that it can be immersed in a bath of tannic acid solution as recommended by Welles of Connecticut, a much better result from the use of tannic acid can be had.

Underhill, 1933, showed the importance of the replenishing of the fluid loss through the granulating surfaces of burns. Davidson of Michigan in 1925 contributed his tannic acid treatment which has revolutionized burn therapy. His recommendation was the use of tannic acid applied to the burn with gauze. Soon after Beck and Powers recommended the use of the spray in the application of the tannic

acid to the burned area. Donald Welles of Connecticut in 1933 reports his success with the immersion of the patient's burns in a tub containing the tannic acid solution. The results obtained from these gentlemen's contributions to burn therapy are to my mind, the first real valuable progress made in this work. We hear surgeons criticize tannic acid method of treating burns claiming that they have not had as successful results as have others that recommend the treatment. Only in recent talk with a very successful surgeon I was bluntly told that I was following a fad and that in a short time tannic acid would be rated with the former paraffine or amberine treatment of burns. Every man to his own opinion but those who have not had the same brilliant results as experienced by others can not place the blame on the method but must place the fault where it belongs. Somewhere there was a slipup in the technique of the surgeon or he was not acquainted with the facts underlying tannic acid therapy. May I presume to portray some of the quainted with the facts underlying tannic acid results? Many produce the tanning effect too quickly by strong solutions of tannic acid and continue the tanning for too long periods of time. They have a hard, impervious, tough membrane formed the same as found in actual over tanning of leather. The correct membrane should be soft and pliable. Some, after applying the tannic acid, are lulled into complacency and think all one has to do is wait for the wound to heal without further attention. We have seen doctors inspecting the burns press and feel the membrane with their fingers not gloved, and neglect of aseptic technique invites bacterial invasion. The infection in wounds treated with tannic acid, to my mind, begins at the edges of the membrane and extends beneath the coagulated membrane where drainage is impossible. Early attention to asepsis in after examination or dressing of the wound, paying particular attention to the edges of the membrane that have begun to curl up and at the first sign of inflammatory change begin the treatment of the insidious infection. Moisture due to perspiration under and above the membrane have a tendency to make for a favorable medium for bacterial growth.

We should always aim to obtain a dry condition of the burned area, and the patient's dressings or bed linen should not be damp as this leads often to unnecessary chilling of the patient. May I here describe a condition which is frequently observed by those seeing large numbers of these cases.

Patients suffering from burns have their body water content depleted with a condition of dehydration present as well as a high blood concentration due to loss of the fluidity of the blood. We put forth every effort toward the replacement of this fluid loss by forced fluid intake and locally by the astringent effect of the tannic acid forming a coagulum or membrane to prevent the constant leaking of serum from the wide open capillaries of the wound surface. Then we turn right around and by means of artificial heat produce active perspiration over the entire body of our patient, that causes them to lose more fluid then we can replace by our treatment. It is essential that we maintain heat while the patient is in shock but I wish to emphasize that after this period is past, we should not cause excessive perspiration by attempting to keep the patient too warm. Have comfortable temperature within the room just sufficient to prevent chilling the patient.

The usual procedure is for the membrane to turn or curl at the edges and become loosened so that it may be easily removed. In the greater number of instances, the underlying tissues present a clean, read, granulating surface which results in a soft pliable scar. Should infection develop beneath the membrane, this calls for removal of the membrane under anesthesia. I do not believe that one should attempt removal of the membrane without an anesthetic on account of the attendant pain. In some cases on account of counter indications it is thought best not to use an anesthetic, the simple cutting through the membrane in longitudinal lines down to the tissue below will be sufficient to drain any infective material. If the membrane is tough and over tanned this is well nigh impossible. Some men hesitate to use tannic acid by the immersion method for fear of toxic effect that may be produced but I believe that fear is over emphasized. This fear is especially present as concerns children but even here there is little to be feared. I believe in the wide spread use of tannic acid in burn therapy and that

very few men if any can really demonstrate an actual case of poisoning where tannic acid has been used intelligently.

Blackfoot, Bennet and Browning have suggested the use of 1/1000 solution of acriflavin to combat infection in burns and to those who have given it a trial, satisfactory results have been obtained.

To encourage granulation growth, normal horse serum with the addition of 0.35% cresol as a germ retardant is recommended by Montieth and Robinson's method is a value aid.

All contact with or dressing of burned area should be attended with the strictest observation of asepsis. These cases merit the use of gloved hands, the same as any open operation. Only those solutions are to be used that are known to be sterile. Many times we find in certain forms of treatment, that our gauze dressings have adhered to the wound and the removal of same has caused severe pain and discomfort to the patient. This condition often results in what I have called dressing symptoms which can not be accounted for in any other way. A child anticipating the ordeal of redressing of its wounds has a decided fear complex develop and very often there is a rise in the pulse rate and temperature with an accompanying restlessness, that appears not unlike the beginning of an infection. Sometimes this is accompanied by actual tremors simulating the onset of infection. These symptoms usually appear each day at the time previous to the actual wound dressing. Pain is the dread of children and if the dressings adhere, it is well to have the nurse or interne apply a wet dressing of boracic acid an hour before your arrival. When the actual dressing time is at hand those secretions which have glued the dressing to the wound will have become softened and the dressings may be removed with little or no pain. The disappearance of the pain element in wound dressing witnesses the disappearance of the so-called dressing symptoms.

Much emphasis should be placed upon the value of having available sharp cutting instruments and forceps of a nature that will permit of the removal of necrotic tissue and tags of membrane with the least amount of pulling and discomfort to the patient.

Another surgical procedure in the toilet of the burn wound, is the use of fluffed gauze, not flat pads of gauze, to be used only where raw surfaces are exposed. The previous moistening of dressings that adhere to the wound also prevents the breaking up of the delicate granulations of the reparative tissue which often adhere or extend through the meshes of the gauze. When ruthlessly pulled free these small capillary loops are torn and a bleeding surface is left behind for favorable growth of bacteria. Why is it so common that it is thought necessary to change surgical dressings so frequently in the average hospital? The value that seems to accrue to this is to my mind lost in the actual damage done to growing tissue and is an avenue of infection developing.

In 1916 I reported a non-adhering gauze made from impregnating a wide mesh gauze with stearine, paraffin and petrolatum. This appeared in J. A. M. A. and should not be confused with the stiff paraffined sheets of gauze that are on the market. Our gauze retained its original flexibility, not adhering to the wound and permitting drainage of secretions through the meshes into the fluff gauze placed above it. It is so simple that any doctor can prepare the dressings in his own office and the formula was given to the medical profession without any cost involved.

In children, we have hesitated to use large wet dressings of boracic acid where the burned area was extensive as there has been some question as to its toxicity in burn cases. Beside these dressings by being constantly wet cause the clothing and bed linen to be wet, which is not only uncomfortable to the patient but encourages chilling of the body.

If burn wounds are given the proper toilet, they should be free of any disagreeable odors and nothing I know of gives better results than the use of weak permanganate solutions sprayed on wounds at time of dressings.

Where blister formation is present and there is need to evacuate the serous contents, it is always advisable to open them under strict asepsis and a removal of the dead covering. The area should be dried and dressed. Do not allow the unopened blisters to remain too long as often they become infected.

It is useless to remind those present, that the promiscuous breaking of burn blisters with the

fingers is not permissible if not criminal. Still that has been witnessed as well as the removal of crusts with ungloved fingers. All crusts should be removed as soon as they become loosened as they favor germ growth. We should give to the redressings the same care, if not greater care, than we do to the redressings of postoperative conditions. In the former we have usually a large raw area while in the latter we have only the line of incision and this protected by reparative processes. The opportunity of introducing infection in the former is much greater than in the latter case.

Posture of the patient is an important factor in their comfort. Many times the patient will complain of pain in the extremities and we direct measures looking toward relief, when by simply changing the position of the patient affords immediate relief. Many of these patients attempt to keep the bed clothing from exerting pressure on their burns and by holding themselves in a cramped position produce discomfort if not real pain. See that the patient has complete muscular relaxation by the judicious placement of pillows and folded bath towels so that the patient is comfortable without any expenditure of effort on their part.

Under posture we may also include the placement of burned parts so that flexion deformities will not be encouraged. Splinting the part will in the beginning of the treatment, prevent contractures at a later date. No two raw surfaces should be allowed to contact each other as they may unite. This may be prevented by splinting or restraint. The axilla burns are the most apt to approximate raw surfaces and we have seen quite a good deal of reconstruction surgery done to correct this deformity when this might have been avoided if care had been exerted to keep the parts separated in the early days of the treatment. Do not permit sentiment or fear of discomfort of the patient to retard your keeping the parts in extension as the pain is of temporary nature in the early stages of the injury. If we delay until the flexor muscles have pulled the parts into extreme flexion we will usually fail to correct same. By that time there may have developed an accompanying fibrous ankylosis within the joint itself and recovery more difficult if not impossible.

We are firm advocates of the great value in frequent changing of burned patients in bed and not permitting them to lie flat on their backs. By a semi-recumbent or semi-Fowler position we do not favor stasis in the lung and we discourage the so-called static pneumonia. If the burns will permit of the patient being out of bed, it is desirable that we get them up into a chair. They feel better and their morale is greatly improved. In children it is important to get them up and out of doors in the sun, in the summer. Exposure of the burned area to sunlight is of great value and is soon reflected in the improvement in the child's general condition.

Moorhead of New York has his patient's puff out the cheeks and move the muscles of the face to prevent contraction of scars of the face. This is of the utmost importance as we know the scar formation in electric burns are of a more soft texture than those found in burns of other origin. They have a tendency to stretch more easily and do not adhere to underlying tissues as firmly as other burn scars. They also fade more quickly than those of other burns. There is also often found, keloid formation, especially in burn scars of children and women. Treatment with the roentgen ray and radium hastens absorption and softening of the keloid. If the scarring and keloid has a poor cosmetic effect, then surgical removal by excision of scar and the approximation of the wound edges with a subcutaneous suture, followed by a radium pack will frequently prevent a keloid from reforming in the incision.

When is surgery indicated? This is a much discussed subject and form my own personal experience of many burned cases treated surgically for the removal of apparant destroyed tissues, I have no doubt of its dangers. We are not always able to determine the depth or extent of the devitalized tissue and have no way of knowing how far the effect of the heat has reached. We may induce hemorrhage that is difficult to control and usually we cannot afford to have bleeding with a further depletion of the fluid content of the body. For after a severe hemorrhage in a burned and shocked patient they seldom recover. The bleeding does not have to be severe in many cases to have a like result. Many times a secondary hemorrhage will develop after the operation is completed and the patient back in bed. They actually have been known to bleed to death in their dressings. I

cannot see the surgical wisdom or of what value early surgical interference is going to bring. We certainly in the early stages of the burn have shock of one kind or another and what advantage is gained by increasing that shock by a surgical operation?

Where tendons or nerves are injured in the burn or destroyed by the heat, any attempt at repair soon after the accident may end in failure. I believe the far better judgment is to await a future date for surgery. It is needless to say that no attempt at surgery should be attempted in the presence of an infected burn. Sufficient time must elapse after the disappearance of the infection before reparative surgery is attempted. The same holds good in skin grafting, as failure and needless sacrifice of good skin will only result if infection is present. The time for replacement of skin over a denuded area is soon after the securing of a healthy area. Skin grafting at an early date. all other things being equal, is indicated over burns on the flexor surfaces of joint areas. Over these areas much time is saved to the patient, earlier return to his work is assured and the most important of all, is the prevention of contractures.

As to the choice of skin grafting I can only advise the one with which you have had the most favorable results. Thirsch grafts seem to be the one most commonly used. Pedicle and tubular grafts are indicated where a deep filling is essential. Koch and Kanavel's method of suturing a full thickness graft to the granulating surface without tension and the graft cut to size and shape of denuded area gives excellent cosmetic results.

We might say at this point a few words about the use of silver foil placed in direct contact with the wound after all bleb formations have been removed. Pfab asserts that the silver prevents infection, that the patient is relieved at once and healing occurs with a minimum of scarring.

Both Moorhead of New York and Scott of Washington recommend the use of sodium bicarbonate dressings with excellent results. The former uses this wet dressing in all first degree burns.

Shullito of London favors the use of 1-5% solution of silver nitrate sprayed or painted on the burn and follows with an exposure of a mercury vapor or tungsten arc lamp or the sun. He claims the fixing of the cell protein in the destroyed tissue prevent absorption of infective material and avoids toxemia.

The use of gentian violet in burn therapy has met with favor at the hands of some surgeons but personally I feel the staining of everything including the patient, surgeon and clothing about the patient is so messy that this has discouraged use of it in my cases.

A word might not be out of place here as to paraffin treatment of burns which had such vogue some twenty years ago. There is a place for it today in burn therapy and if restricted to the first and second degree burns excellent results will be forthcoming.

We should not be lead by high pressure salesmen to become enthusiastic over the many burn ointments which they recommend as the last word in burn treatment. Many of them are expensive and of no greater value than the more simple ointments.

Closely allied with electric burns we find the electric flashes or glare injury to the eyes. This condition is not due to actual contact with the flame of the electric arc or the heat generated but to the ultra violet ray radiation of the arc. There is a tremendous contraction of the pupils of the eyes in their effort toward preventing the entrance of the glare to the retina.

With all electric burns there are more or less an accompanying flash or glare produced upon the eyes.

The symptoms of glare injury to the eyes are but transitory and usually disappear within twenty hours after the accident. The pupils are at first greatly dilated which follows the tremendous contraction produced at instant of the glare. The sclera is injected, conjunctiva inflamed, profuse lachrymation, sensation of sand in the eyes and the lids feel hot and dry. There may be an accompanying blurring of vision with sensitiveness to light. The first aid is restricted to instillation of sterile castor oil and the use of opaque glasses. We have seen hundreds of these cases but have yet to witness one in which any permanent damage has been done to the eye or where any visual defect has developed. This is made more emphatic, when it is known that for twenty years, we have had a periodical annual examination of all employees. We know the preaccidental condition of each employee as

well as the post accidental condition. No complications have been found over this period of twenty years and these examinations have been made by an occulist in our department. No electric cataracts have been found and no so-called star fractures of the lens been seen after electrification as is often claimed by others.

As regards burns and electric shock, we have likewise had no remote effects produced after electrification as is so often claimed in medical legal cases. We have had no permanent physical or mental defects result from electrification. The only permanent defects witnessed, have been those where an actual part has been destroyed by the burn itself. These results are not due to any great amount of skill on the part of our group but are solely the end results of the usual case of electrical accident. If in the twenty years of our observation on a large number of these cases, we have had no permanent physical and remote complications as so often claimed by others, then either our method of observation has been lax or we are talking through our hat.

ELECTRIC BURN CASES

First degree	376
Second degree	330
Third degree	164
Total	870

Note: In the electrical burn patient we may find one or more of these burn degrees and usually in the severe injury we will find all three degrees present.

ANATOMICAL PARTS BURNED

Fingers and hands	311
Wrist and arms	138
Face, head, neck	300
Feet and toes	29
Ankles and legs	50
Chest, body and back	42
Total	870

Note: The hands and figures are the most frequently burned due to the nature of the work performed by the employee. The face, head and neck are usually burned by the so-called electric flash that produces an accompanying flash or glare injury to the eyes.

RESUME OF ELECTRIC BURNS

Lost time burn cases	494
No lost time burn cases	376
Amputation of parts	10
Keloid formation	4
Slight after evidence injury	376
Pliable soft scars	160
Faint scarring	376
Contractures	7
Deaths from burns	2

ELECTRIC FLASHES

Flashes to the eyes	450
No lost time injuries	310
Lost time flashes	140
Average time lost	2 days
Permanent ocular defects	0
Defective vision	0

Note: From these figures it will be seen that the remote effects from electric burns and flashes have been greatly exaggerated.

CONCLUSION

The above cases came under our observation from various sources during the past years and include both employees of the electrical industry and those not employed, by reason of treaspassing or using electricity for other purposes than it was intended. With the increase of the use of electricity, many more people have recourse to it. The electric current as furnished in your home and factory is perfectly safe to use for the purpose for which its is supplied. The same is true of appliances that are sold by reputable manufacturers and are safe to use as directed. Installations are safe only when they are put in by those persons who are qualified to make the installations and who should be called in the maintenance of your electric circuits and appliances. Children climbing trees or poles during play is a hazard and should be discouraged.

It is not the intention of the writer to instill in your minds that electric current as furnished in your home is a hazard but it is a well known fact that accidents occur from its misuse both intentional and nonintentional. I am desirous of calling to your attention that burn therapy is vitally in need of study and research by our profession, so that out of this study there may arise standards that make for more scientific treatment of this class of injury. Also I wish not to be misunderstood that I am trying to convey the fact that the electrical industry is any more hazardous than other industries nor is the hazard in the home from the use of electricity any more of a hazard than other common every day necessities of life.

DISCUSSION

Dr. C. Paul White, Kewanee: I would like to ask about the frequency, and also the care one should exercise in the expectancy of tetanus in these burns. My reason for asking is that we have seen it occur in two instances of linemen. One case, the man fell from

the wire onto a very grassy plot. He had a very severe burn that cost him his leg, and he developed a tetanus fourteen days later. Antitoxin, unfortunately, was not given for twenty-four hours.

SLEEP INDUCED BY SODIUM AMYTAL

A Modified Treatment for Use in Psychoses

FRANK S. RANKIN, M. S., M. D.

Resident Staff Physician, Chicago State Hospital

CHICAGO

The value of rest as a therapeutic agent in any type of disability has been definitely recognized from time immemorial. The sick or injured human or animal instinctively seeks rest as a result of his disability.

Modern therapeutic technic provides for the administration effectively of physical inactivity and energy conservation in almost every type of organic illness. This does not mean, however, that psychic rest or conservation of psychic or emotional energy is accomplished. Neurologists and psychiatrists realize fully that so long as consciousness is functioning there will inevitably be some degree of mental energy expenditure. Therefore, it is only during the function of sleep that conscious activity is suspended and the metabolic activities are enabled effectively to generate and restore to the cells of the central nervous system the energy which has previously been expended. In all types of acute psychoses there is more or less continuous over-expenditure of emotional energy. In the maniacal and agitated types there is in addition to this an over-physical activity as well. It has been the effort of psychiatrists always to devise some therapeutic measure to secure both physical and mental rest for patients of this type. It has been apparent that prolonged narcosis would promise this result and would be the practical and desirable form of therapy, provided, it could be accomplished with reasonable safety.

Bleckwenn[1] published a report in 1930 of his studies along this line, using sodium iso-amyl-ethyl-barbiturate intravenously. Prior to this time we had been using a combination of sodium salts of phenobarbital and barbital, but had not quite had the courage to push these drugs to a state of prolonged narcosis. Stimulated by the reports of Bleckwenn and others, we began a cautious experiment in the use of these drugs in a wide variety of conditions, which has resulted in the practices to be outlined.

Read before Irving Park Branch, Chicago, Medical Society, May 26, 1937.

The idea of producing narcosis in the psychotic had been known a long time, but it is the opinion of many European writers that Kläsi, a Swiss psychiatrist, is to be given credit for this method as he was the first to introduce it in the treatment of the psychotic. He used the drug somnifene.

I. *The Pharmacology of Sodium Amytal.* The drug used almost exclusively was sodium amytal (the sodium salt of iso-amyl-ethyl-barbituric acid). It was first prepared and used in animals by Page and Coryllos in 1926.

Zerfas and his associates were the first to use sodium amytal intravenously for surgical anesthesia in man, and Bleckwenn was the first to report the use of the drug in psychoses.

The chemistry of this drug is as follows: Sodium amytal belongs to the barbiturate family. See Chart I. Barbituric acid is a combination of urea and malonic acid. These are the principals in all barbiturates. They belong to the purine group. $CH_2—CO—(NH)_2—CO$ is called the hypophore radical and is the part of these drugs (barbiturates) which is responsible for the narcosis.

When malonic acid is treated with urea, it yields a cyclic ureide, malonyl-urea or barbituric acid, for example:

Rapidity and Duration. The variation in the side chains of barbituric acid derivatives results in the extreme differences in both the speed and duration of action. The results in Table 2, compiled from a large series of animals, shows that "Seconal" causes the most rapid anesthesia and has the shortest duration of hypnosis, while phenobarbital sodium is the slowest as well as the longest acting drug. The differences in the duration of action are well illustrated in Table 3, the order of activity being "Seconal" shorter than pentobarbital sodium, pentobarbital sodium shorter than "Sodium Amytal," shorter than sodium barbital, and sodium barbital shorter than phenobarbital sodium.

TABLE 1.—IN DOGS BY ORAL ADMINISTRATION

Drug	Onset of Anesthesia	Duration of Anesthesia		Time Required for Complete Disappearance of Hypnotic Symptoms	
	Min.	Hrs.	Min.	Hrs.	Min.
"Seconal"	30	2	7	12	24
Pentobarbital Sodium.	35	2	..	15	..
"Sodium Amytal" ...	35	2	29	22	20
Sodium Barbital	50	6	20	48	..
Phenobarbital Sodium.	65	7	30	60	..

I have prepared a chart which will give some idea of the average effects of representative barbiturates when administered orally or parentally to humans in equal doses. Charts 3 and 4 have been prepared on the basis of my clinical experience.

Chart 3 indicates that "Seconal" in a dose of 15 grains injected as a 5% solution, 2 cc. per minute, produces surgical anesthesia within six to ten minutes. The anesthesia lasts somewhat less than half an hour, and return to consciousness is accomplished within five or seven hours. A similar dose of pentobarbital sodium, similarly injected, produces somewhat less than surgical anesthesia, and recovery is not complete until from the eighth to the tenth hour. While a comparable dose of "Sodium Amytal" produces analgesia and mild anesthesia. Complete recovery from such a dose of "Sodium Amytal" requires twelve to fourteen hours.

Chart 4 indicates that the oral administration of equal doses of each of these barbiturates has in general the same anesthetic or analgesic action but that the effects come on more slowly and the total duration of action is longer.

The action of sodium amytal when given in safe doses is primarily hypnotic. The exact localizing action of the drug is unknown but it is fairly well established that it acts on the brain stem, probably in the hypothalamic portion of the diencephalon. According to Keeser and Keeser, the hypnotic action of the barbiturates is chiefly upon the thalamus and corpus striatum.

2. *Technique.* The following procedure has been followed. First, the patient is studied to secure a fair knowledge of his pre-morbid personality and of events which led to the break-

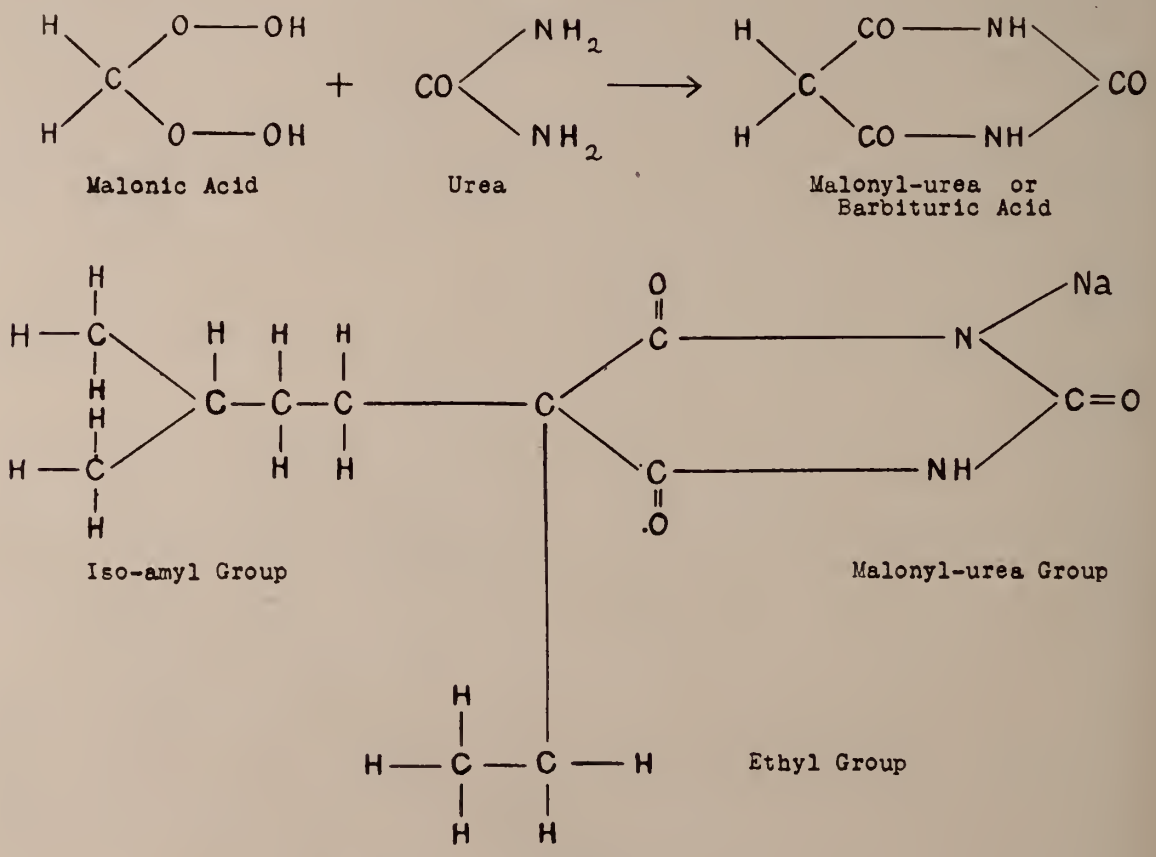


CHART 1

Sodium Iso-amyl Ethyl Malonyl-urea or Sodium Iso-amyl Ethyl Barbiturate "Sodium Amytal"

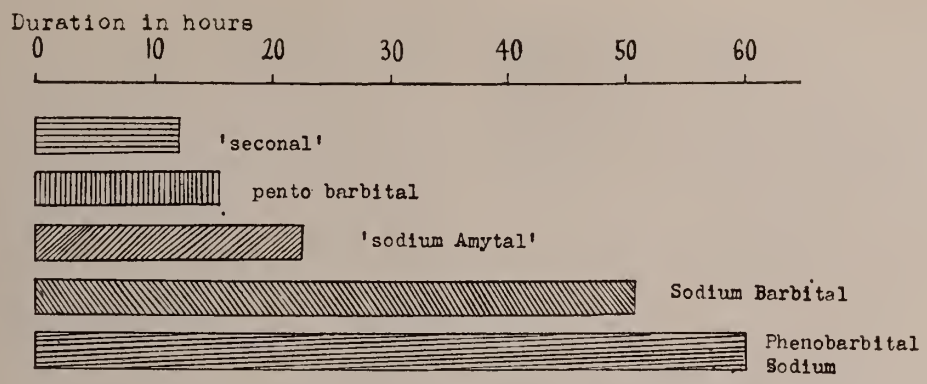
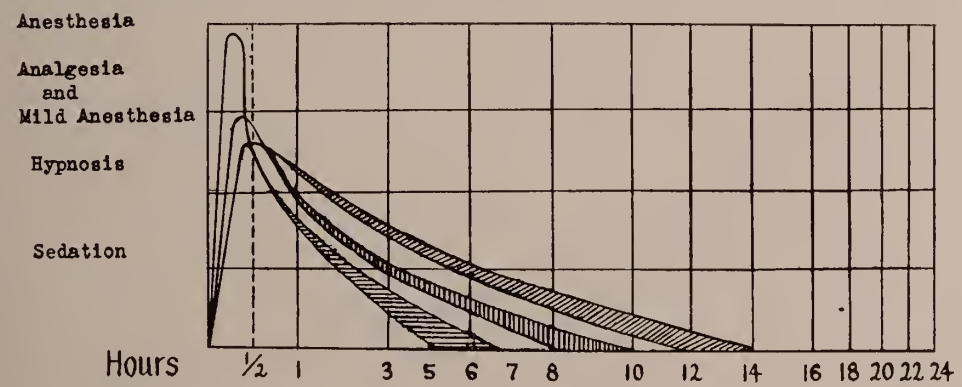


CHART 2

Speed and Duration of Action with Minimal Anesthetic Doses.

down. Secondly, the worker tries to establish as much rapport as possible prior to the institution of treatment. These two requirements seem to be essential for psychotherapy, which is probably one of the most important factors in bringing about a favorable result with sodium amytal treatment.

The patient is given a thorough physical examination and his gastrointestinal tract is cleaned. Rectal temperature, pulse, respiration and blood pressure readings are taken for a few days prior to the treatment with hypnotics in order to determine the average variations. Then the patient is secluded in a quiet room and given 3 or 6 grain doses to determine whether there is any idiosyncrasy for the drug. If there is no idiosyncrasy, 12 grains of sodium amytal is administered on a 3 or 4 hours schedule by mouth either in capsule or by putting the powder in orange juice; until the patient is soundly asleep. It is then continued in dosage of 6 or 9 grains every four or eight hours as needed to produce continuous sleep. The routine of administration of medicine and of feeding and elimination can usually be worked out so that the patient becomes awake enough to swallow his food and evacuate bowels and bladder. After the first 36 or 48 hours it is usually possible to maintain a



Intravenous Injection of Equal Doses of three Representative Barbiturates, All of Which are Sodium Salts.

'Seconal' - 15 grains

Sodium Pentobarbital - 15 grains

'Sodium Amytal' - 15 grains

CHART 3

Comparison of Duration of Hypnotic Action in Dogs with an Anesthetic Dose by Mouth.

state of narcosis with a diminished dosage. If the patient is very much disturbed, it may be advantageous to give it intravenously. If less disturbed and patient is agreeable the drug can be given by mouth or even rectum. If the patient is greatly disturbed he can be given massive doses, as much as 110 grains in 24 hours or as much as 27 grains in one dose (by mouth).

During narcosis the temperature, pulse, respiration and blood-pressure readings are taken every 4 hours and urinalysis daily. To make sure of proper gastrointestinal elimination and to prevent complications, daily enemas are given. If the bladder is distended during narcosis, and this is a matter that bears watching, patient should be catheterized. These narcotized patients require careful watching and nursing. It is desirable at times to place side-boards on the beds to prevent their rolling out. The nurse is instructed to turn patient from side to side every two hours in order to prevent hypostatic congestion. Occasionally tube feeding will be required, as some patients become much more deeply narcotized than others, however, feedings of semi-solid food are usual when the patient awakens spontaneously.

The dose of sodium amytal is regulated according to the patient's response. If a small dose keeps him asleep from 4 to 6 hours, there is no need to increase it.

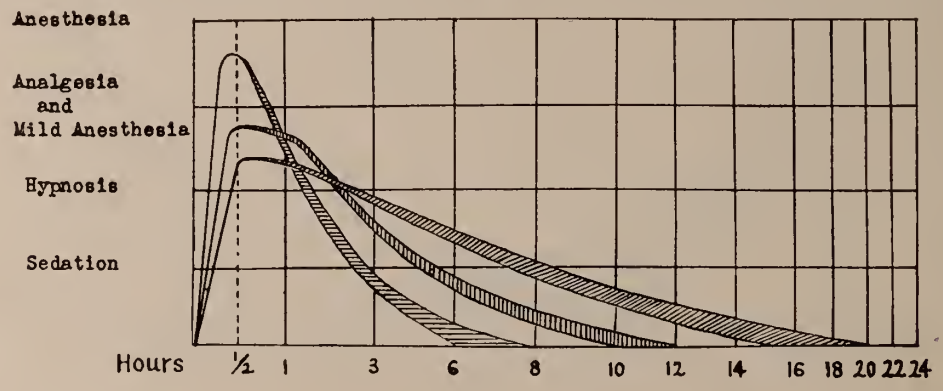
It is important to watch the patient in order to determine when the most favorable change occurs; this lucid interval should be used for psycho-therapy (some form of suggestion).

The duration of treatment will depend on the response of the patient. The moment the first contact is established, psychotherapy should be used freely in spite of the fact that it means interruption of sleep.

If rapport cannot be established it may sometimes be necessary to increase the dose of sodium amytal and the frequency and duration of the treatment in order to obtain it. Sometimes when previously quiet patients become disturbed during sodium amytal treatment, it is wise to withdraw the medication for a short time for the disturbance is no doubt a toxic reaction, but this disturbance is no indication for stopping medication altogether. I know of no signs for stopping medication except perhaps severe shock or any extreme physiologic change, for example, a temperature of 106° F.

3. ANALYSIS OF RESULTS

A. *Dosage.* The largest single dose by mouth was 27 grains. The smallest daily dose given was 3 grains; the average dose was 12 grains.



Total Duration of Action

Oral Administration of Equal Doses of Three Repreaentative Barbiturates, All of Which are Sodium Salts.

'Seconal' - 15 grains

Pentobarbital Sodium - 15 grains

'Sodium Amytal' - 15 grains

CHART 4

There is no hard and fast rule set down for dosage; it must be governed by the condition of the patient. It is not desirable, except with extremely disturbed patients, to obtain deep narcosis. The object is to keep the patient in a twilight state in order that psychotherapy may be used to the best advantage. On the same principle one can not predict the length of treatment, or the number of sessions, nor should one be governed by the total intake. In my series of cases, one patient received as much as 1,400 grains; another as little as 21 grains during a period of treatment. The longest period of sleep was 21 days; shortest was 3; the average was 10 days. The average for the total intake of sodium amytal was 400 grains; the smallest intake per day was 3, the largest 110 grains. The ages of the patients varied from 18 to 40; the average age was slightly over 25.

B. *The Physiological Changes.* Observations of physiological changes were restricted to temperature, pulse and respiration rates, and systolic, diastolic and pulse pressures; these were studied and compared according to the duration of treatment and the quantity of drug consumed.

The average temperature changes remained uniformly independent of the duration of treatment. An increase was shown, however, in pulse rate and in both the systolic and diastolic pressures.

Table 2 contains the average highest and lowest values of temperatures, pulse and respiration rates, systolic, diastolic and pulse pressures observed on the second day of treatment. The second day was chosen because on this day the greatest number of toxic reactions occurred.

The only variation is the quantity of sodium amytal on the preceding day and the particular type of mental illness. One sees that fluctuations in the physiologic values mentioned are independent of the amount of drug consumed.

Summarizing, one may say that the following conclusion is justified. The response to the drug varies with each individual patient; neither the quantity administered nor the duration of treatment is a necessary determining factor in the occurrence of toxicity. Thus, some patients may receive enormous doses and be kept asleep for long periods of time without many appreciable toxic symptoms, while others with small doses and short periods of treatment may evince marked toxic symptoms. As an illustration the following cases may be cited:

S. M., who received 1400 grains of sodium amytal during 21 days did not present any toxic manifestations; another patient, R. B., began to show toxic reactions on the 3rd day of treatment after having received only 20 grains on the two preceding days. The highest physiologic values on the 3rd day were: temperature, 104.2 F., pulse rate, 120, respiration rate, 23, and blood pressure, 130 systolic and 80 diastolic. This patient also had a chill and was cyanosed. That his reaction was not due to any factor other than the drug was confirmed by the fact that the physiologic values became normal two days after withdrawal of the drug, and that five days after the drug was resumed the patient again presented toxic manifestation; this time the temperature was 106° F., the pulse rate 118, and respiration rate, 27; there were also a severe chill, considerable coughing, cyanosis and vomiting. During the four days preceding the appearance of these symptoms the patient received 108 grains, or an average of about 28 grains per day. The temperature, pulse and respiration rates and blood pressure returned to normal after withdrawal of the drug. The physical examination on both occasions failed to reveal any abnormal signs.

TABLE 2.—MEAN PHYSIOLOGIC VALUES ON FIRST AND SECOND DAY IN 61 PATIENTS TREATED 64 TIMES.

Grains	Temp.	Pulse rate	Resp. Rate	Syst. blood pressure	Diast. blood pressure	Pulse pressure
			1st Day			
0-79	98.6	98	20	109	72	37
			2nd Day			
	98.8	82	18	96	66	30

C. *Complications.* The complications which have occurred in this series have been mainly those of toxemia. The toxic manifestations recorded were: convulsions, hypostatic congestion, motor incoordination, nystagmus, depression of the respiratory mechanism, nausea, emesis, dry throat, mucus in throat, dysphagia, headache, dizziness, blurring vision, thick speech, cough, hiccough, cold and clammy skin, chill, cyanosis, excessive perspiration, skin rash, edema of lids, urinary incontinence, highest temperature, lowest temperature, highest pulse rate, lowest pulse rate, highest respiration rate, lowest respiration rate, highest systolic blood pressure, lowest systolic blood pressure, highest diastolic blood pressure, lowest diastolic blood pressure.

The following physiologic values were above the mean value: both highest and lowest temperature, pulse rate, respiration rate, both highest and lowest systolic and diastolic pressure (highest mostly on the fifth and lowest on the

second day). If urinary incontinence is to be regarded as a toxic manifestation, (as Kläsi regards it in his article) it occurred 70 times in patients who had not previously been incontinent. Next was emesis, which occurred 30 times. Another toxic manifastation which occurred frequently was cyanosis where the respiratory mechanism has been depressed. Mucus in throat, probably due to diminution of the cough reflex, occurred mostly on the second day. If only one of my cases was there oliguria, and in none, anuria. There was no albuminuria or ketosis.

On studying the toxic symptoms according to the day of sleep one finds that the greatest number occur on the second day; by the tenth day there are only one-third. Treatment was discontinued once in a patient whose temperature rose to 106 degrees F. No other toxic symptoms were alarming and were not considered sufficient indication for discontinuing treatment in spite of the fact that some patients had such low readings in temperature, pulse rate and respiration rate as 96.4, 48, and 12, respectively.

D. *Role of Psychotherapy.* Psychotherapy is important in the treatment for psychoses after rapport is established. Material can be obtained from patients under the influence of sodium amytal which may lead to a better understanding of the breakdown and sometimes may establish a psychogenic origin of the particular mental illness. At this stage when the patient is somewhat more alert, more eager to be helped and more sure and less fearful of his surroundings, suggestion is of the utmost benefit. Certain patients are more alert on certain days. These days may be called the "best days." The greatest number of "best days" have appeared on the sixth day of treatment, and the next greatest number of "best days" on the fifth and ninth days. As the "best day" I designate the day on which the patient is alert and in good contact, eager to be helped, eager to converse and exhibits a logical and coherent stream of talk. It is on such days that I have stopped medication abruptly and allowed the patients to be up and about. It is during the "best days" that psychotherapy should be accentuated.

Cases of mental diseases of similar classifications were divided into two groups. In one group the patients were treated with sodium amytal in doses similar to those administered in group 2, but without psychotherapy. In group 2 psychotherapy was used. The group with psychotherapy invariably showed from 50 to 100% improvement as compared with slight or no improvement in the other group.

E. *Reactions of Patient with Various Types of Psychoses.* Of 61 patients treated, 4 were treated twice and one was treated three times. All cases fall into 11 different categories of which the largest number is made up of hebephrenic psychoses. Arbitrarily I set four weeks as a time limit for checking the occurrence of improvement. If a patient improved or showed any favorable change after that time, the changes were not attributed directly to the effects of the drug and were not recorded as such.

In evaluating changes in a patient it is difficult to avoid the subjective element; nevertheless, I have endeavored to be objective and conservative and to designate favorable changes only when they were definite and unmistakable. I accordingly viewed my patients as unimproved, improved and recovered 25, 50, 75 or 100%, the last mentioned including insight and ability to return to previous occupations. The 25% improvement ratio refers to patients who were to adjust themselves in an institution on a low level but able to receive some form of occupational therapy. As 50% improvement I designate those who could adjust themselves at home on a comparatively inferior level. As 75% improvement were those who recovered completely but lack insight. On the basis of these designation of 61 patients who were treated a total of 64 times, 24.5% remained unimproved, 11.4% showed improvement of 25%, 18.03% improved 50%, 18.03% improved 75%, and 27.7% recovered completely. Of 10 manic patients 5, or 50%, recovered. In the depressed group, 4 of 11 or 36.6% recovered. In the schizophrenic group the simple and paranoid types gave no recoveries, the hebephrenic group gave 2 recoveries of 11, or 18.2% and in the catatonic group 2 of 6 recovered, or 33.3%. The only groups of cases in which complete recovery occurred were the reactive depression, somatic and toxic (drug) psychoses.

F. *Present Status of Patients 9 to 16 Months After Treatment.* In Table 7, which gives the present status of the patients, it is shown that 27 of the originally 61 treated patients are now considered to be recovered, ten having been trans-

ferred to this rating from previously unrecovered ratings. Of these ten, two are from the 50% improved group and eight are from the 75% improved group. The present status of patients is based on a uniform, post-parole questionnaire, which has been sent to all relatives of patients. Interviews have been had, when possible, with relatives and patients.

It may be argued that, if patients with manic-depressive psychoses recover without treatment, why treat them? Well, the answer is: Much time may be saved if the treatment is applied, also the added comfort, the easier management of the acute psychosis and the shortened period of hospitalization.

4. *Discussion.* The exact means by which the good results observed have been achieved are not yet definitely established, but certainly the conservation of the patient's energy must be a definite factor. Other factors which theoretically may play a part might be mentioned.

The complete helplessness which exists in narcotized patients and the at least unconscious recognition of this on the part of the patient may so condition these responses as to initiate a conduct habit of dependence upon and confidence in physicians and nurses, thus enabling uncooperative and antagonistic patients to become more docile and cooperative. I have observed a very definite reduction in patient's inhibitions with a strong tendency to spontaneous mental catharsis, requiring very slight stimulation on the part of the physician. It has been apparent that these periods of easier contact have been, in many cases, very fruitful periods of psychotherapy.

Finally, another factor, it may be possible that the prolonged, complete abandonment of reality represents a controlled equivalent of the psychosis itself during which the factor which might be termed a "psychotic obligation" is discharged rapidly in its entity.

SUMMARY

1. A method is presented of prolonged narcosis by the use of sodium amytal orally administered.

2. Technique: A twilight state is produced so that contact can be established for the purpose of psychotherapy. The duration of treatment will depend on the response of the patient. The moment the first contact is established, psychotherapy is used freely in spite of the fact that it means interruption of sleep. The longest period of sleep was 21 days; shortest was 3; the average was 10 days. One patient received as much as 1,400 grains, another as little as 21 grains during a period of treatment. The average for the total intake of sodium amytal was 400 grains; the smallest intake per day was 3, the largest 110 grains. The ages of the patients varied from 18 to 40; the average age was slightly over 25.

3. The average temperature changes remained uniformly independent of the duration of treatment. An increase was shown, however, in pulse rate and in both the systolic and diastolic pressures.

TABLE 3

	*Initially Unimproved				25				Initially Improved 50				75				100			
Present Status	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Schizophrenia																				
Simple	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hebephrenic	2	..	..	..	5	..	2	..	..	..	..	..	..	..	..	..	..	..	2	..
Catatonic	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..
Paranoid	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Manic-Depressive																				
Manic	..	..	..	..	..	..	..	..	..	..	2	..	..	..	3	..	..	..	5	..
Depressed	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	2	..	..	4	..
Reactive Depression									..	..	..	..	..	..	..	..	..	..	2	..
Anxiety State	..	..	..	..	..	..	..	..	..	4	..	..	..	..	3	..	..	..	..	..
Somatic	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Toxic	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Mental Deficiency	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Total	15	0	0	0	0	5	0	2	0	5	2	0	0	1	8	2	0	0	17	0
	15				7				7				11				17			
	Unimproved—15				Improved—11				Recovered—27				Relapsed—10				61			
	24.5				18.03				45.7				16.3				100			

Status from 9 to 16 Months After Treatment

*A—Unimproved; B—Improved; C—Recovered; D—Relapsed

4. The response to the drug varies with each individual patient; neither the quantity administered nor the duration of treatment is a necessary determining factor in the occurrence of toxicity.

5. Complications which occurred were mainly those of toxemia. The main ones were: skin rash, cold and clammy skin, depression of respiratory mechanism, emesis, dry throat.

6. Psychotherapy should be used on the best days. "The best day" is that day on which the patient is alert and in good contact, eager to be helped, eager to converse and displays a logical and coherent stream of thought. It is on such days the drug is stopped and psychotherapy is used.

7. Reactions of patient: Of 61 patients treated, 4 were treated twice and one was treated three times. On this basis 24.5% remained unimproved, 11.4% showed improvement of 25%, 18.03% improved 50%, 18.03% improved 75%, and 27.7% recovered completely. Of 10 manic patients 5, or 50%, recovered. In the depressed group, 4 of 11, or 36.6% recovered. In the schizophrenic group the simple and paranoid types gave no recoveries, the hebephrenic two out of eleven, or 18.2%, and in the catatonic group 2 of 6 recovered, or 33.3%. The only groups of cases in which complete recovery occurred were the reactive depressions, somatic and toxic (drug) psychosis.

8. All patients treated were select cases.

9. This method is recommended for use in general hospital and private homes.

10. I believe this method of treatment, if carried out under proper conditions, is within the limits of reasonable safety, and that the added comfort, the easier management of the acute psychosis and the shortened period of hospitalization justify further usage, which will more clearly determine the value and the limitation of the method.

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RABIES IN ILLINOIS 1936

G. Howard Gowen, M. D.
Division of Communicable Diseases
Illinois Department of Public Health
SPRINGFIELD, ILLINOIS

The magnitude of rabies as a public health problem is well exemplified by the trends indicated in the following table:

TABLE 1*

Year	Animal Bites	Positive Heads	Human Deaths
1931	4,356	215	3
1932	6,286	258	1
1933	6,508	275	6
1934	7,590	576	7
1935	11,053	649	5
1936	18,466	814	11

In view of this fact, it was felt that at this time a detailed analysis of human cases of animal bites who had received antirabic inoculations and also human cases of death from rabies, would be pertinent and apropos. A total of 1,131 cases of animal bites or exposures who had received inoculations were studied, and in addition 11 cases of human rabies deaths.

In table 2 is given the gross classification of the type of exposure to rabid or suspected rabid animals.

TABLE 2. NATURE OF EXPOSURE TO RABID ANIMAL

Uncovered skin	577
Through clothing	231
Superficial	500
Deep	278
Contact but not bitten	351

*These figures should not be considered as portraying the actual number of people bitten or the incidence of rabies in animals. There are unquestionably hundreds of unreported bites in humans, and there are undoubtedly many rabid animals whose heads are never brought to the laboratory for diagnosis, and many heads from rabid animals so badly decomposed that diagnosis is impossible.

Tables 3 and 4 analyze the superficial and deep bites according to body distribution.

TABLE 3. DISTRIBUTION OF BITES, 1936: DEEP

Arm	122
Leg	97
Face	43
Arm and Leg	6
Trunk	3
Arm and Face	1
Unclassified	6
Total	278

TABLE 4. DISTRIBUTION OF BITES, 1936: SUPERFICIAL

Arm	273
Leg	135
Face	46
Arm and Leg	11
Arm and Trunk	3
Arm and Face	3
Face, Arm and Trunk	1
Arm, Leg and Trunk	1
Leg and Face	1
Unclassified	25
Total	500

Tables 5 and 6 give details of the type of animal exposure in cases bitten or exposed only by contact.

TABLE 5. TYPE OF ANIMAL INFLICTING BITE, 1936

Animal	No. of Bites
Dog	1002
Cat	54
Cow	19
Hog	9
Calf	9
Muskrat	1
Squirrel	1
Bull	1
Mule	1
Rat	1
Total	1097

TABLE 6. TYPE OF ANIMAL EXPOSURE IN CONTACTS NOT BITTEN

Animal	No. of Exposures
Dog	296
Cow	14
Human	31
Calf	5
Cat	1
Mule	1
Calf and Horse	2
Squirrel	1
Total	351

Table 7 gives a resume of the type of local treatment in the 1,131 cases of animal bites and exposures studied.

TABLE 7. RESUME OF LOCAL TREATMENT IN 1,131 BITES STUDIED

Treated with Nitric Acid	210
Treated with other than with Nitric Acid	349
Not Treated Locally	221
Contacts but not Bitten	351
Total	1131

Table 8 gives a detailed analysis of the diversity of chemical agents employed in the local treatment of the inflicted wounds.

TABLE 8. DIVERSITY OF ANTISEPTIC AGENTS, APPLIED TO WOUNDS DUE TO ANIMAL BITES

Nitric Acid	210	Kerosene	5
Tinct. Iodine	130	Peroxide	3
Phenol	63	Cautery	3
Mercurochrome	47	Sulphuric Acid	2
Tinct. Merthiolate	19	Hexylresorcinol St. 37	2
Alcohol	13	Listerine	1
Turpentine	12	Bichloride	1
Tinct. Metaphen	10	Creolin	1
Soap and Water	9	Permanganate	1
Silver Nitrate	6	Iodine and Bichloride	1
Lysol	6	Sutured	1
Phenol and Iodine	6	Ultra Violet	1
Formalin	6		

Table 9 shows the time elapsed between the date of bite or exposure and the institution of antirabic prophylaxis. It is evident that the majority of the cases had begun the series of inoculations within one week after the animal bite.

TABLE 9. DELAY IN BEGINNING ANTIRABIC INOCULATIONS

Interval Elapsed	Cases
0— 4 days	570
5— 7 days	315
8—14 days	182
Over 14 days	40

The longest interval between date of bite and beginning of inoculation was 31 days.

The case histories in brief of the human deaths from rabies in 1936 are as follows:

Case 1. Male, aged seven years; deep bite on left lower lip; wound treated locally with carbolic acid; wound closed by three skin clips; no antirabic vaccine given; incubation period 31 days.

Case 2. Male, aged 25 years; superficial bite on left thumb; no local treatment of wound; no antirabic vaccine given; incubation period 46 days.

Case 3. Male, aged 34 years; superficial bites on both ankles; no local treatment; 14 doses of antirabic vaccine given; 10 days elapsed after bite before treatment was begun; incubation period 113 days.

Case 4. Male, aged 50 years; deep bite on left arm above elbow; mercurochrome applied locally; no antirabic vaccine given; incubation period 33 days.

Case 5. Male, aged 9 years; not bitten but had abrasions on hand and contacted rabid dog; no local treatment; no antirabic vaccine given; incubation period 40 days.

Case 6. Male, aged 4 years; deep bite on upper lip; wound sutured; 21 doses of vaccine given; three days elapsed after bite before inoculations were begun; incubation period 21 days.

Case 7. Male, aged four years; deep bite on face, wound treated with phenol and alcohol; would closed with three dermal sutures; 21 doses of vaccine given; three days elapsed after bite before inoculations were begun; incubation period 38 days.

Case 8. Male, aged five years; not bitten but had mosquito bites on hands and handled rabid dog; no local treatment; no antirabic vaccine given; incubation period 18 days.

Case 9. Female, aged 10 years; details unknown except that patient had been scratched by a cat two weeks before onset but at the time of her demise the cat was still living (questionable case).

Case 10. Male, aged 50 years; deep bite on upper lip extending into the mouth; no local treatment; 21 doses of vaccine given; three days elapsed between bite and beginning of inoculations; incubation period 15 days.

Case 11. Female, aged 50 years; three deep bites above left ankle. Treated locally with fuming nitric acid; no antirabic vaccine given; incubation period 15 days.

While it is true that the tables are self-explanatory, nevertheless it is well to emphasize certain of the important features portrayed. We note that more bites occur through the uncovered skin than through skin protected by clothing, which is in accord with the latest report from the League of Nations.[1] In Illinois the number of superficial bites exceed the number of deep bites which conforms with the aforementioned report. Seemingly, there were a large number of individuals who received antirabic inoculations not because they were bitten but because of contact with rabid or suspected rabid animals. This immediately brings up the question of the potential danger involved when rabid saliva comes in contact with the skin surface. It is generally agreed that if the individual has abrasions on the hands, for example, and handles a rabid animal, the virus may penetrate through the medium of the abrasions and infect the individual. Unfortunately, a skin surface which may appear to be intact may contain minute abrasions which are not discernible to the naked eye. These abrasions may serve just as well as a portal of entry for the virus as abrasions of larger diameter. One can only conclude that as a measure of safety, an individual who has been grossly contaminated with rabid saliva, whether abrasions are visible or not, should receive antirabic vaccine as a precautionary measure.

We find, as is generally known, that bites of the arms and legs predominate in frequency. It should be noted, however, that 8% of the superficial bites studied were on the face and that 15% of the deep bites studied were on the face. The significance of face bites is too well known to require discussion and emphasis should only be made at this time on the fact that they are quite frequent.

We find as usual that most of the animal bites are inflicted by the dog, which merely reemphasizes the fact that fundamentally the control of rabies will depend for its effectiveness upon the control of the dog. Cat bites are second in frequency and in sequence from then on we find diverse animals involved in the biting. In table 5 we find that in addition to exposure to rabid animals there were 31 exposures to human cases of rabies, and there are some rather interesting and important facts in this regard. In practically all of these cases exposure was the result of attempted nursing, care and restraining of the patient. In all of these cases the individuals exposed were probably more grossly contaminated with rabid saliva than would occur from contact with rabid animals. In several instances in the handling of the patient, the individuals involved were scratched rather severely on hands, arms and face. The potential hazard in such cases cannot be overemphasized. In one instance of human exposure a different feature presented itself. The wife in this instance was being repeatedly kissed by her husband while in the prodromal and acute stages of rabies. Seemingly, the husband sought his wife's affection in this case because of the fact that he was extremely frightened about his condition and rather anticipated a fatal issue. While it is stated that rabies is a wound infection and that the rabies virus is harmless when ingested provided the mucosa is intact, in the case described, with such gross contamination one would not dwell too much upon what might be considered an intact mucosa.

The information portrayed in regard to local treatment of wounds due to animal bites becomes quite significant. It is generally accepted that the proper treatment of an animal bite in a region in which rabies is prevalent should be thorough cauterization with fuming nitric acid. In spite of this fact we find that only 18% of the bites studied had been treated in this accepted manner. More astounding still, we find that about 18% had received no local treatment whatsoever. When one glances at the variety of antiseptic and other agencies employed in the local treatment of such wounds, one marvels at the originality and creative ability of those who employed such forms of treatment. The local treatment of animal bites has been satisfactorily standardized and yet there is persistence in the deviation from an accepted method to the employment of agencies which have definitely been proven as not satisfactory.

In consideration of the human cases of rabies

we find that half of the cases were in children. Five cases received no vaccine. In nine cases the wound was not treated locally with fuming nitric acid, and of these, one was treated with carbolic acid, one with phenol and alcohol, one with mercurochrome, and six received no local treatment. In three of the cases the wound was sutured. It certainly would seem more than a coincidence that, of the 1,131 cases of animal bites and exposures who received vaccine and did not develop rabies, in only one case was the wound sutured, whereas among the eleven fatal cases the wound was sutured in three instances. In two of these cases the patient received 21 doses of vaccine and yet the result was a fatality. Mention should also be made of the fact that of the two human deaths occurring to date in 1937, in one case three skin clips were applied to the wound on the left hand. This patient did not receive prophylactic inoculations. It is questionable whether suturing animal bites in districts where rabies is prevalent is a rational procedure. It is poor surgery to suture a potentially infected wound immediately, and certainly animal bites come under this category. It is interesting to note that in all the human cases of rabies, there was one or more violations of accepted standard procedures. This can only indicate that thorough and complete information has not been properly disseminated as yet in this regard.

No attempt will be made to calculate mortality rates. We are only too familiar with the fallacy in trying to arrive at any conclusions, whether such rates are calculated on basis of total animal bites, total cases receiving vaccine, or cases in contact or bitten by known rabid animals. The potential inaccuracy is self evident in either case. The fact still remains, however, that human rabies is 100% fatal. This is more of a basis for rigid control rather than problematical mortality rates.

SUMMARY

1. Statistics have been presented on 1,131 humans who, during 1936, received antirabic vaccine because of bites or exposure to rabid or suspected rabid animals.

2. Case histories have been presented of eleven human deaths from rabies during 1936.

3. It is to be noted in every case of human death described there has been one or more violations of accepted procedures in such cases.

4. Out of 1,131 cases of animal bite only 18% had been cauterized with fuming nitric acid.

5. All wounds produced by the bite of an animal known or suspected of having rabies should be cauterized with "fuming" or strong nitric acid. The efficacy of such local treatment has been proven by Cabot,[2] Poor,[3] and Rosenau.[4] Phenol is not reliable;[5] nitrate of silver is valueless; actual cautery is not effective.[4]

6. Wounds produced by known or suspected rabid animals should not be sutured, if we may conclude anything from the high incidence of suturing among human deaths, and low incidence among humans not developing rabies. Fundamentally from a surgical standpoint, no potentially infected wound should be immediately sutured.

7. There are no known contraindications to giving antirabic vaccine. All ages and conditions should be inoculated if exposed. In the case of vaccine furnished by the Illinois Department of Health which is produced according to the Semple method, all doses are the same regardless of age, sex, severity of bite or location of wound. The number of doses must of course be determined by the severity and location of the bite. A minimum of 21 doses should be given on all face bites, hand bites and multiple wounds in any part of the body. In the case of 21 doses, two doses a day are given for the first seven days, and one dose a day for the next seven days.

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PRESENT STATUS OF PLASTIC SURGERY

JOHN F. PICK, M. D.
CHICAGO

In the social and intellectual evolution of man, his instruments of progress and self-preservation are constantly being sharpened to a keener edge. Medicine as one of the instruments, exemplifies these changes in its own metamorphosis.

We have transcended the age when an obstetri-

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cian was looked upon as an immoral person because he dared to enter the chamber of a pregnant woman. We have just turned the corner of suspicion, when a neurologist was looked upon as an individual slightly "cracked." Brain surgery has graduated from the commonplace ice-bag and occasional lumbar puncture to a highly respected and indispensable specialty.

Likewise, plastic surgery has ceased to be a conglomeration of surgical odds and ends and random skin-transplantation. It too, has divorced itself from the barber age of general surgery. It is here to stay, for several reasons.

Historically, we have shown that the transplantation and moulding of viable tissue can readily be accomplished. Then suddenly the devastations of the World War provided the outstanding necessity for rational reconstruction of the maimed. After the war modern society with its speed, its machinery, its vanity; is providing us with injuries as numerous and almost as grave as those of the war. And that same society, to whom health is a necessity, with whom efficiency has been pushed to the point of virtue, and to whom physical appearance has become an indispensable commodity, is demanding that surgery do something more about its post-bellum and industrial injuries. Not only are we asked to preserve the injured part, but to return the efficiency of it.

The multitude and pecularity of these problems necessitated special application and consideration of surgical as well as physiologic principles involved. The quality of surgical technique had to be sharpened in minutest detail. New instruments had to be applied. Pre- and post-operative management had to be reconsidered in a light peculiar to these new problems. Special training was necessary to handle these cases intelligently.

Plastic surgery has been able to meet these obligations only by following and applying in a manner peculiar to its scope and problems, the principles and scientific dogmas of general surgery. On the Continent it has been obliged to perpetuate this vital service on an organized institutional basis. Incidentally, biologic studies in tissue growth have confirmed the rationale of the transplantation and moulding of viable tissues. And general surgery recognizes that a cure only begins with the excision of a part. Yet the surgeon, as a rule, under pressure of existing pathology can do no more. The plastic surgeon thus becomes an indispensable collaborator in the work of the general surgeon. The rehabilitation of the maimed and injured can in this wise be followed to its logical conclusion—the return of function and form in the execution of our privilege.

The historical background of reconstructive surgery is a matter of common knowledge.

The World War was the cradle of modern plastic surgery. During and after the war it became obvious that it was necessary to segregate those badly mutilated from the rest of the population, not only for purposes of treatment but for other reasons. These patients could not be returned until something was done about their hideousness. Hence the origin of the many institutions in Europe harboring the war maimed. Where these institutions were under strict scientific supervision it soon became apparent that much could be done in restoring the maimed and returning the crippled back to society. The results obtained in these cases by men of good surgical training aroused great interest all over the world. Since it became apparent that so much good was to be expected from plastics during the war, it was only a natural step to apply the experience of war to civilian life.

It is here that reconstructive surgery transcended the stage of intelligent first aid treatment; of the harelip operation and became a specialized branch of surgery, particularly upon the Continent, begging special training and application of surgical principles. The European forces interested in this branch of work finally became concentrated in four great centers. The largest of these, though not highly publicized is in Prague, where the Institute of Plastic Surgery, harboring one hundred or more beds at that time and over two hundred now, was inaugurated by the government itself and placed under the direction of Professor Burian, a man whose interest in plastics was only intensified as a result of his experience in three wars, covering an interim of twenty years. As an example of what has developed from these centers I shall discuss this one Institute and its work more in detail presently. Another great organization was that under Gillies in London who contribnted much of what we now know of the surgery of the face. The third great center of work was that under Ombredonne in Paris who even before the war

gave much to plastic work. He now confines himself almost exclusively to rehabilitative surgery in infants. Joseph of Germany, though more interested in the cosmetic aspect, did much after the war to elevate plastic surgery from the carnal to the conservative and exact.

The machine age after the war, began to contribute mutilations almost as bad and numerous as those of the war. These with the many congenital deformities, which we always have with us, was the great problem of the now, rapidly developing specialty. More and more plastic surgery ceased to be looked upon as something confined to merely changing the facial contours. It began to be challenged with the reconstruction of parts as to form and function anywhere upon the body, and within the body.

In a broad sense, plastic surgery has for its purpose not only the rehabilitation of the anatomy and appearance of any given part but the restoration of function as well; in contrast with surgery in general, whose prime concern must first of all be directed to cure or relief; frequently causing unavoidable interference with function, depending upon the degree of surgical intervention necessary.

The functional shortcomings of any given part are quite frequently due to anatomic distortions or insufficiencies. Where the function of a part is restored, very often even the cosmetic results go hand in hand with it.

Hence the necessity of minute study in diagnosis of the functional peculiarities and their importance in an injury. This in fact is more important at times than anatomic peculiarities; or their extent on the surface, or in the third dimension. Most physical injuries, whether acquired or congenital, are rarely confined to a certain anatomic location or to one organ; consequently in the reconstruction of a part it is necessary to ascertain to what extent contiguous parts are involved in order to reinstate proper function; finally it is important to determine whether it is at all possible to renew a part which has been lost or destroyed in such wise that its function can return. It is these considerations which determine the amount and nature of the material used in the reconstruction, as well as the place from which it is best to supply it. The foregoing deliberations determine as well the method of preparation of the parts.

The autograft without question, of course, in any given case is better than the isograft. Thus far the skin has proven to be the most important material which we use in the reconstruction of not only areas denuded of their skin but other and deeper tissues as well. Especially is this true in the substitution of skin for mucous membrane where cavities are to be lined; for not to line a cavity is not to have a cavity.

Skin can be transplanted in one of two ways; as a free graft or as a delayed graft. The type of graft depends essentially upon the type, the location and the extent of the injury and the place from which the graft is to be taken. All but the tube graft have been known to surgeons for hundreds of years. The latter is a great addition to plastic surgery of modern times, and though usually credited to the ingenuity of Gillies of London, I prefer to think of it as a product of Burian of Prague, who had employed it extensively in the Balkan wars of 1911. Though most types of grafts were known to surgeons of yore, it is only the present day meticulous technique which lends these grafts to final usefulness. Grafts, skin grafts in particular, are today fashioned not only in accordance with the size and shape necessary, but in accordance with their blood and nerve supply as well. Hence we speak of an arterial graft because it is fashioned about a main artery which supplies it. It is because of the arteries of supply that we are able to create a graft with better nutrition and resiliency. It can be longer and the pedicle can be much narrower, wherefore it will reach further and "take" much easier. If such a graft can be tubed, it helps to prevent infection, desiccation and shrinkage. This is especially important in delayed grafts. The entire graft or as much of it as is possible should be tubed and especially is it important to tubulize the pedicle. In facial reconstruction it is especially important to use the tube graft or a double-deck graft. The latter is made by opposing the two raw surfaces and suturing them together.

The Esser technique has done much to contribute to the success of reconstructive surgery. It is the best procedure so far devised for the epithelization of cavities and it gives a better cosmetic result than any other method in use. In connection with this method it is usually recommended that the outer layers of the skin be used. We at the Plastic Institute in Prague

as a rule used whole thickness skin. This obviates a great deal of shrinkage and drying and usually dispenses with the necessity of post-operative prosthesis.

In the manipulation of muscular tissue one cannot be as radical as in the case of skin. Especially is this true with the muscles of the face. In the latter, it is necessary to use neighboring muscles or parts thereof in place of those that are missing. Femoral fascia is usually the source of supply for ligaments where these are needed. Where it is merely a question of filling out a defect without regard to function, transplantation of fat, or cartilage, as a rule is very successful. In replacing the bony parts of the face, foreign material is absolutely out of the question, with very few exceptions. I here mention paraffin and metals only to condemn them. Ivory is absolutely the best of foreign hard material that is being used, and even here if the result is good there is always the danger of sloughing following the slightest trauma. As a matter of fact it is usually not necessary to have to resort to foreign material, since in the average case there is enough material available in the patient himself. And yet there are specific instances where it is certainly advisable to use ivory as a preliminary in reconstruction; as for example in the remodeling of a flat nose of long standing. Here the normal paranasal muscle pull is so deranged, that the immediate implantation of cartilage only leads to its bending and distortion, until such time as the abnormal muscle pull is relaxed.

The status of plastic surgery can probably best be appreciated by citing one or two specific conditions. A very common and important procedure of course, is the repair of a harelip, and cleft palate. I choose to designate the co-existence of the two as "Palip".

Until quite recently, and with many operators it still is the only procedure, the Langenbeck technique was the main stay or entire operative method. Any harelip or cleft palate which can be operated upon in accordance with the principles of Langenbeck, associated with his relaxing incisions, will give just as good results by any other method. To get the best functional results, the Langenbeck method is insufficient. As I have said before, nature rarely chooses one isolated anatomic part in its destructive efforts. If we now come to think of the Langenbeck method as one of simple coaptation, which fundamentally it is, a good anatomic result may follow; but it is rarely that a parent brings a child to a surgeon because of a hole in the roof of the mouth or a split lip. What the parent is concerned with is the speech defect. The prime consideration in these cases is a formal functional result and this is seldom obtained by the Langenbeck technique alone. For obvious reasons nature in failing to complete the union of the lip and the palate has set up a parallel pathology in and about the nose. Langenbeck did not take this into consideration. His technique of coaptation also avoids another very important consideration in the repair of these cases. It is necessary to make two complete cavities out of one. As has been mentioned before, cavities must be properly and completely lined. It is only a result of the work of Veau of Paris and Burian of Prague that a technique was evolved which fulfilled the latter consideration. It was Veau's work on the reconstruction of the internal nose; specifically the floor of the nose; Burian's work on the reconstruction of the air passages including the external nose, that has made it possible through the medium of what now has naturally become a major operation, to accomplish good functional results in most cases of cleft palates. Here we have one example of the necessity for special research, training, and the setting down and religious adherence to definite principles in the manipulation of tissue for reconstructive purposes. Whatever work in this line is necessary in any given case must be completed before the child begins to talk and develops a pathologic substitute for speech. That in consideration of a good functional result: otherwise the condition can be operated upon at any age.

Congenital syndactylism can rarely be successfully operated upon according to a text-book on general surgery. The misfortunes and scarring following the usual procedures are too well known to be repeated. It is only the proper use of skin grafts and their protection that will give acceptable results. This necessitates proper knowledge of the management of grafts. All these cases should be operated upon between the first and second year of life, but much can and has to be done prior to the operation in order to loosen up and prepare the affected part for surgical intervention.

Much has been contributed by Gillies of London to the rehabilitation of facial defects and

injury. Many principles of plastic surgery have been set down by him and his co-workers, which have made the reconstruction of the injured face a dependable surgical procedure. Any surgical interference in this region must take into account very minute details of anatomy and technique in order to arrive with proper results. Asepsis must be absolute; antisepsis avoided as much as possible; one must never employ silk sutures beyond a certain lateral to the line of incision; the skin must never carry tension and where tension is necessary the responsibility for it must be thrown upon the muscle and facial structures; topographic anatomy must be observed to the point of artistic demeanor. Where immediate interference following injury is not practicable or permissible, injured parts must be brought into as near normal approximation as is possible through the knowledge and technique of the surgeon; and the application of post-operative means such as diathermy, must be judicially and persistently employed in order to get good results.

In the reconstruction of the face, we are not only confronted by violent external injuries but internal injuries as well, arising from syphilis and tuberculosis; such as saddle-nose, and lupus in its various manifestation. There is little question but what surgical interference with almost any type and stage of lupus involvement of the face is the most rational procedure in the anticipation of a cure. In connection with syphilitic involvement of the face, a positive Wassermann is no contraindication to surgical intervention, provided the patient is under active treatment or has been for a period of at least six months.

The work of Allen Kanavel of Chicago on the reconstruction of mechanical and chemical injuries to the extremities, and particularly the hand, must take its place here. The social and economic import of this work is beyond computation. Right here permit me to add something to the surgery of the hand which is just as important as the reconstructive work proper. The conscientious physician has been so over-disciplined by the general surgeon in matters of first aid, that when he lays eyes on mutilated hands, his mind begins to run something like this: Infection — iodine — debridement — more iodine—more debridement. And before you know it, he is doing what amounts to an amputation. He is purely concerned with the immediate present; not thinking of the possibilities of reconstruction in the future. What he does not excise in his obsession to rid the wound of infection, he burns with disinfectants in his zeal for surgical antisepsis. Meticulous application of soap and water to every crevice of a wound is far superior to indiscriminate splashing of iodine and carbolic acid. Let us remember, skin and subcutaneous tissue are very resistant to infection, and if you must cut, please save as much of the skin as possible, for it is a valuable basis for subsequent plastic work and a source of blood supply for implants. The most taxing injury to the hand, taxing both to the injured and the operator, is the loss of the thumb. In such cases it is most important first of all, to provide the necessary skin and subcutaneous tissue to protect on the one hand, what bone is left and to prepare the field on the other, for what parts may be necessary in the future. It is only then that one can begin to think of ligaments and bones or the transplantation of toes to the hand for the purpose of incorporating them in the reconstruction of the digit.

In the lower extremities some of the most difficult problems are trophic and varicose ulcers. Simple skin transplantation in most cases is only a form of temporary relief, even though associated with sympathectomy. The same holds true of x-ray burns. A permanent result can only be obtained by the use of tubular grafts, which in these cases are very often difficult to manage and can only be depended upon at definite times, under definite management.

In discussing the present status of plastic surgery, one cannot help but touch upon the cosmetic aspect thereof. In this connection, one should mention many prominent French surgeons who have contributed much in this field, among them Ombredonne, de Fourmontel, Claoue and D'Artigue.

The relation of human topography to human temperament; physical appearance and mental makeup, when by us better understood will also be better appreciated. And then undoubtedly, cosmetic surgery will play a more significant part and hold a greater obligation. In the meantime it is definitely developing a technique which is in the hands of responsible men, both social, scientific and practical in its application.

The greatest problem now facing plastic

surgery is a better understanding of the nature and use of the isograft. Although several attempts have been made to use tissue from other patients and even animals, little success has followed. Personally I am satisfied in my limited experience with isografts, that the solution of the problem is not out of reach. It is only a matter of time and application of certain already known biological principles which in the near future will permit transfer of viable tissue from one body to another. Time does not permit me to discuss the technicalities and the interesting points involved.

From the foregoing it should be apparent that reconstructive surgery has something indispensable and dignified to offer to the field of general surgery. It has developed definite principles of procedure; a scientific technique and especially upon the Continent have these efforts been organized into productive institutions which find not only the support of governments but the approval of the profession itself.

As an example now I shall cite the Plastic Institute of Prague, its workings and accomplishments in picture form taken hastily during my association with the organization. It is an institution of over 200 beds, financed by the government and incidentally has proved to be one of the most flourishing and busiest places in Europe. It was the first Institution of its kind in the world and I am certain will, as a result of its success, serve as a good example for the planning and creation of similar outlets for the maimed and ill-born in other countries of the world. England, Russia, Bulgaria and Hungary are already laying plans. Here in America, where plastic surgery has suffered the influx of barbers and beauticians, there are nevertheless attempts to set aside working facilities for this rapidly developing field. And though we have an "Association of Plastic Surgeons of America," there is to date no definite organized or recognized institution where a scientific pursuit of the management of viable tissue for the purpose of reconstruction of the human form has as yet been attempted. But it is my honest belief that the time is not far off when we shall be able to train our young men in this rather difficult field of surgery. Some of our universities are vaguely thinking in this direction.

An attempt is being made individually by Blair of St. Louis, a man of wide experience in the general field of surgery, who definitely forsees the need and rationale of such training. But as yet that attempt has not transcended the stage of skepticism on the part of the nose and throat man, the eye specialist, the dermatologist and various other specialists, who naturally look askance at this newcomer in the surgical field. And yet in places where reconstructive surgery has been placed upon an organized and working basis, it is delightfully surprising to find the cooperation that exists between these various specialists determined to produce the best possible in the restoration of function in the appendages of man.

58 E. Washington St.

DURATION OF ANESTHESIA WITH AN OIL SOLUBLE ANESTHETIC SOLUTION

THEO. F. REUTHER, M. D.
EFFINGHAM, ILL.

In 1936 an investigation was instituted to determine the various causes of pruritis ani in cases admitted to the service of Dr. Collier F. Martin in the Proctology Clinic of the University of Pennsylvania Graduate Hospital. The results of this investigation will be reported later. The various examinations and laboratory procedures required about two weeks to complete and during this time it was necessary to give the patients temporary relief in order to secure their cooperation.

The use of oil soluble local anesthetic solutions is not new, having been recommended by Yeomans, Gorsch and Mathesheimer[1] in 1927 and by Gabriel in 1929,[2] who recommended them for the control of pruritis ani because of the anesthesia of long duration produced by the types of drugs used, and the gradual release of the drugs from the oil. The solution recommended by Morgan[3] was decided upon because it is painless on injection, produces good anesthesia, and can be easily prepared by a pharmacist. It is a solution containing procaine base 1.5%, butyl-para-aminobenzoate 6%, benzyl alcohol 5% in sterile almond oil. It was kept in 30 c.c. rubber-capped bottles.

After warming the solution, injections were made deeply into the subcutaneous tissues surrounding the anus. Massage after injection helped distribute the solution. Care was taken not to inject the external sphincter both an-

teriorly and posteriorly, as this would produce a temporary loss of sphincter control. Ten cubic centimeters of the mixture were used for each patient. The injection caused no pain or burning sensation and no reaction occurred The skin became anesthetic within five minutes after injection and the patients stated that the area felt "numb" and did not itch. The skin was tested by the prick of a needle to determine the area of anesthesia and this was repeated at each subsequent visit until sensation returned. The time elapsing between injections and the return of sensation was recorded in fourteen cases. It was noted that the relief from itching and the anesthesia correspond almost exactly, it being possible to determine the end of anesthesia by the presence of scratch marks in many of the cases.

Patient	Duration of Anesthesia
1	7 days
2	7 days
3	10 days
4	14 days
5	8 days
6	14 days
7	14 days
8	12 days
9	5 days
10	13 days
11	23 days
12	9 days
13	12 days
14	21 days

The use of the anesthetic mixture was then extended to minor anal operations and the palliative treatment of acute anal ulcer, and it was found to be very satisfactory. The anesthesia lasted until healing was well under way. In two cases there resulted a firm indurated area at the site of injection without evidences of acute inflammation. In another case, where the asepsis was imperfect, a subcutaneous infection resulted which lasted about two weeks, but subsided without abscess formation. In spite of the more superficial level of injection in the patients with pruritis, no induration or inflammation resulted.

SUMMARY

1. Skin sensation to pain and itching was abolished following the injection of an oil soluble anesthetic mixture deeply under the skin.

2. The freedom from pruritis continued during the period of anesthesia.

3. The period of absence of pain sensation and itching varied from 5 to 23 days with an average of 12 days for the series.

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DIAGNOSIS AND TREATMENT OF OCCIPUT POSTERIOR POSITION

WILLIAM COOLEY, M.D.

PEORIA, ILL.

My reason for presenting a paper on occiput posterior position is because of its great frequency. Piper is inclined not to call it a complication or even an anomaly but rather a normal presentation. Its frequency is probably much greater than most records show, since many cases are unrecognized until labor is well advanced. Tweedy's 1% and Edgar's 4% probably apply to persistent occiput posteriors, otherwise the percentage would be much greater.

Some of the more recent reports show its greater frequency, probably due to earlier diagnosis before rotation has taken place. Danforth. recently reporting 443 out of a total of 1,565 private cases or an incidence of 27.1%. Scott in 1,000 consecutive cases found it to occur 144 times or an incidence of 14.4%.

Of my last 500 private cases 110 were occiput posteriors or 22%. Since many cases rotate spontaneously and escape recognition, this per cent. is probably too small.

Harper states that primary position of occiput is posterior in approximately 50% of all cases. Potter claims he finds it in 70% of his cases. One reason for the general impression that the posterior position is of infrequent occurrence is that statistics show that the occiput is found in front in from 70 to 90% of cases. This is true for the majority of posteriors rotate anteriorly and examination made after rotation has well begun reveals occiput in anterior position, making persistent posterior position relatively infrequent. Therefore statistics based upon examinations made at different times during labor, and particularly if late, are valueless in determining the frequency with which the occiput, at the onset of labor, is directed posteriorly. Furthermore the term posterior is applied by some

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authorities only to those cases in which the posterior position persists. If only the latter are called occiput posterior the infrequency of this presentation is very evident. For the above reasons most writers claim that the position is much more frequent than their records show. It is the persistent posterior that makes the condition of greater gravity than it should be.

Diagnosis. The diagnosis can be made with a reasonable amount of certainty before labor begins, unless obesity or rigidity of the abdominal wall or excess of liquor amnii make conditions unfavorable for abdominal examination. Inspection shows absence of normal uniform anterior convexity, the rounded arch of the back being replaced by the irregular ventral surface of the child so that a flattening or irregularity of contour of the abdominal wall is produced. A concavity just above the pubis instead of the normal convexity is usually evident. This is the space between the chin and chest and differs markedly from the much shallower depression found in the anterior position. The freely movable feet above and just to the left of the umbilicus is one of the most dependable signs upon which the diagnosis of R O P can be made and vise versa for the L O P. The movements of the feet can be seen quite often in thin persons.

On palpation the back is difficult to locate offering a firm rounded resistence in the right or left flank. The feet can be felt in the location above mentioned. As a result of imperfect flexion the head tends to occupy a higher level than usual. The cephalic prominence can easily be felt. It frequently remains freely movable after a time when engagement should normally have occurred. Such delayed engagement of the head should always suggest the probability of a contracted pelvis or a malposition of the head. If the pelvic measurements are normal the posterior position of the head is the most likely explanation. On vaginal examination the head is high and sometimes difficult to palpate. The cervix is located further back and the anterior lower segment is more elongated than in anterior positions. This posterior location of the cervix is nature's attempt at accommodation of direction of the birth canal to that of the long diameter of the head by posterior displacement of the cervix.

In neglected cases sometimes a large caput has obscured both sutures and fontanelles making diagnosis difficult.

On auscultation the fetal heart beat is heard with maximum intensity in the flank on the same side as the back. In cases of marked deflexion of head it may be heard on the opposite side rather low, in front due to the approximation of the chest wall of the fetus against the maternal abdominal wall. In cases of occiput posterior position the diagnosis of occiput anterior is likely to be made because of this location of the heart beat anteriorly. To avoid such a mistake always search for sounds equally as prominent in the opposite flank. Palpate the cephalic prominence on the side opposite the back and locate the feet. If these precautions were taken in cases suitable for examination few posterior positions would be missed.

On vaginal examination, if a caput has not formed, the anterior fontanelle can easily be felt and it is almost a positive sign of posterior position. After a caput has formed and the anterior fontanelle cannot be felt, by placing a finger on each frontal bone, the two bones can be made to move one upon the other, whereas a result of moulding such cannot be elicited at any other suture line in the vault. Palpating the ear is the most positive sign.

Much valuable information would be secured if every primipara could have an x-ray of her pelvis shortly before term. Any abnormality of the pelvis such as has been described by Caldwell, Molay and Thoms could be studied before labor begins, and we would also be able to estimate the relative size of head and pelvis by means of Roentgen pelvimetry and fetal cephalometry as worked out by Ball.

In occiput posterior position with good flexion labor will usually proceed favorably, other complications being absent. The underlying cause of the difficulty is lack of flexion of the head. O. Bjornson of Winnipeg, says the deflection is due to the posterior position of the convex fetal back against the convex maternal lumbar spine. This brings about extension of the fetal spine resulting, in turn, in extension of the fetal head.

Treatment. The majority of occiput posterior positions are not diagnosed before labor begins. Possibly not very much can be done before labor does begin but some of the obstetricians of the British Isles, recommend the use of pads placed

between the anterior superior spine and the cephalic prominence and held in place by an abdominal binder. The patient should lie semiprone on the side opposite to that occupied by the child's back so that the action of gravity may supplement that of the pads in bringing the back and head around to the front. Watson is also enthusiastic as to the value of a pressure pad so bound or strapped against the anterior shoulder as to rotate it toward the opposite side, thus turning the whole fetal ellipse including the head to better relationship with the inlet. He makes the extreme statement that he has not failed in success by this method.

Danforth has well said the proper management of occiput posterior positions should begin with the first stage. In the first place on account of the frequent long drawn out first stage see that the patient gets plenty of rest. What we want is dilatation and rotation. Nothing is more effective to this end than that measure of rest and relaxation which is possible to secure, without actively interfering with the process of labor. For this purpose I think morphine is still the most reliable drug we have to relieve pain and produce relaxation, used either alone or by the synergistic method of Gwathmey. This method we used for years and found very satisfactory. Patients still ask for rectal ether. Since the advent of pentobarbital we seldom use the rectal anesthesia. We are now trying paraldehyde but have not had enough experience with it to draw any conclusions as yet. There are so many ways of relieving pain in obstetrics but none are ideal. Each physician has the method he is most familiar with and with which he is most successful.

In the second place see that the patient gets nourishment. This should be largely liquid, nonresidue diet for one should always keep in mind the probability of having to administer a general anesthetic. Adair reports one case of fatal aspiration pneumonia. Plenty of carbohydrates, milk soups and fruit juices every 3 or 4 hours is a good rule. In long labors which are frequent in posterior positions the importance of nourishment is evident as an aid in prevention of exhaustion and constriction ring dystocia. If one will anticipate these long labors and insist on patients taking nourishment, exhaustion and acidosis, which Rudolph has demonstrated often is the cause of and precedes the formation of the constriction ring, may be prevented.

After the head is fixed in the inlet we have the patient lie on the side to which the occiput points. This position is not considered of much importance by many authorities but I have always had a certain amount of faith in it and still use it. Since the patient has to lie in some position we may as well give her the benefit of the doubt.

The bag of waters should be preserved until the end of the first stage of labor. After complete dilatation it is not safe to wait longer than 2 or at most 3 hours because of the danger of a constraction ring.

If head is floating, but no disproportion, rupture of the membranes when dilatation is complete or nearly so will hasten the engagement and moulding of the head so that in an hour or two we can proceed with manual rotation and forceps after the method of Danforth. If the head has not engaged and there appears some indication to terminate labor, version is the operation of choice unless Cesarean section is indicated.

In some the occiput will rotate posteriorly and if the baby is small, or the patient is a multipara, having strong pains, she may deliver in that position. Douglas has recently shown some very good statistics with delivery by forceps in the posterior position. I am not particularly concerned about that large group of cases in which, especially in multiparae, after full dilatation and rupture of the membranes, the head rotates with the next few pains and delivery occurrs normally. In this series 49 rotated and delivered normally with the exception of 2 in which low forceps were used. It is the persistent posteriors that give us the most trouble and which require close observation in order to know just when to interfere.

After complete dilatation the two methods of delivery which we favor are, manual rotation and forceps after the method of Danforth and version according to Potter's technique. When choosing which procedure to follow carefully weigh all factors before deciding on which operation to do. Other things being equal statistics show that the child is invariably a better risk advancing by the head than by the breech. In cases of occiput posterior careful attempts at manual rotation carried out slowly and with a

minimum of violence are preferable to the more rapid and forceful extraction that version necessarily entails. After one unsuccessful attempt at manual rotation we should not delay in doing a version, for the longer we wait the more difficult it is likely to be. We delivered 36 by manual rotation and forceps some of which might have rotated and delivered normally if given more time.

The following conditions are necessary for rotation. The head should be engaged and a fair degree of moulding taken place, otherwise after the head is rotated one would have the same difficulty in delivering as in a high forceps operation. It is desired to rotate the head in the pelvis but if necessary it may be disengaged, moulding having taken place, it will not be difficult to bring it into the pelvis after forceps are applied.

Manual rotation is such a satisfactory method that I think for the general practitioner, when confronted with this condition, it is probably the safest and most conservative procedure to do. The technique of manual rotation has been thoroughly described by Danforth. A few of the important points are:

1. Do not wait more than 2 or at most 3 hours after complete dilatation.
2. Use right hand internally.
3. Ether anesthesia sufficient to complete relaxation of the uterine muscle.
4. Rotate head with right hand, at same time pushing shoulder and back over with the left hand.
5. Proper application of forceps.

We prefer version for the following conditions since it can be done more rapidly.

1. Impending fetal or maternal death from hemorrhage.
2. Prolapse of the cord.
3. Rapidly advancing toxemia.
4. Indications of heart failure.
5. All cephalic presentations arrested high up wherein vaginal delivery is not contra-indicated because of pelvic contraction.

In doing a version if the head has had time to mould the danger of injury to the after coming head will be much less. Harper sums up the dangers in delivering the after coming head in the following:

"The dangers in breech extraction per se arise from possible delay in delivery of the after coming head, resistance to the advance of which is due to the fact that it is an unmoulded head that must engage, descend and be born in a relatively short interval following birth of the navel.

"Therefore, version and extraction under conditions that have denied the head the advantages of satisfactory moulding are procedures entailing risks to the child that one may unhesitatingly assume if the emergency warrants, but responsibility that one is not justified in assuming from choice."

If version is the procedure of choice, Potter's method is probably as good as any. D'Esopo has very aptly said, "Very few agree with his indications but nearly all subscribe to his technique." A few important points of this operation are:

1. Complete dilatation of the birth canal.
2. Complete anesthesia.
3. Long rubber gloves.
4. Rupture of the membranes rather high.
5. Bring down both feet if possible being careful not to straddle the cord.
6. Deliver buttocks in hollow of sacrum.
7. As buttocks are delivered favor anterior rotation of back.
8. Deliver arms anteriorly.
9. Deliver head in oblique position.
10. Two fingers in baby's mouth to aid flexion.
11. Pressure with other hand over pubis after arms are delivered.

I have never found it necessary to use forceps on the after coming head. The following condition is very frequently seen in occiput posterior position: Membranes ruptured for 2 or 3 hours, head rather high with more or less moulding, cervix not completely dilated, anterior lip edematous. Something has to be done. It is not safe to wait too long after rupture of membranes. These are cases in which rotation is often difficult or unsuccessful. We prefer version as a primary operation. In this series version was performed 18 times, 16 times as a primary operation and twice after rotation failed.

I am familiar with forceps rotation only through the literature and as yet, have seen no reason to adapt it. I feel there is greater danger of maternal and fetal injury than rotating by hand.

Is it ever justifiable in occiput posterior position to deliver by Cesarean section? It probably is, more often than was previously thought.

Paine, in a recent paper on occiput posterior position says, "If labor fails, indicated by decrease in the duration and frequency of uterine contractions, before dilatation of the cervix is complete, obstetrical judgment alone can esti-

mate, in a given case, if delivery from below will be attended by reasonable success or if Cesarean section is not the wiser procedure."

In this series 6 were delivered by Cesarean section. All were given the test of labor.

Case 1. A primipara 36 years old entered the hospital July 10, 1936, having irregular pains. After being in labor for 48 hours, Cesarean section was advised but permission was not given until x-ray pelvimetry showed that there was a disproportion of 190 cc. A baby boy weighing 10½ pounds was delivered.

Case 2. A primipara, aged 39 years. Membranes ruptured before labor began. Pains started June 24, 1935, about midnight. Dilatation complete at 5 PM. Rotation and forceps attempted at 7 PM. but unsuccessful because of contraction ring. Cesarean section was performed while the patient was still asleep and an 8 pound 12 ounce boy delivered. This was a case where Cesarean section should have been done earlier since the patient was an old primipara with early rupture of the membranes. The patient had rather a stormy convalescence but recovered completely.

Case 3. A primipara 30 years old due April 12, 1937. Pelvic measurements slightly below normal. A diagnosis of occiput posterior could not be made with certainty because of obesity. The patient gained 45 pounds during her pregnancy and went nearly two weeks over her expected date for confinement. X-ray plates showed fetus in L.O.P. position. Measurements made with Ball's pelvicephalometer showed a disproportion of 180 cc. Because of this it was thought best to do a Cesarean section which I did April 25 after a few hours of normal labor pains. Baby weighed 8 pounds and 14 ounces.

Cesarean section was performed on the other 3 cases after each had been given the test of labor. The average weight of each baby in which Cesarean section was performed was over 9 pounds.

In long dry labors success from below is frequently impossible. If mother and baby are in good condition Cesarean section should be seriously considered.

If we all could be as successful in treating contraction rings as Rudolph and Harper, Cesarean section should never be necessary. Rudolph has had very good results with medical treatment. He recommends soft and liquid diet consisting of 3000 calories of food rich in carbohydrates and 2000 cc of water for each 24 hours. Patients should be fed every 2 or 3 hours. She should receive sufficient sedative to ensure adequate rest and sleep. This management he says will prevent exhaustion and acidosis.

Harper says he has never seen a contraction ring fail to fade out under prolonged ether anesthesia given continuously to a surgical degree. He says it begins to fade after 15 minutes. In rings of long standing it may take an hour or more. Only once has he seen it fail and that was where pituitary extract had been given.

Pendleton, in a recent article on abnormal Bandle rings says that we should advocate more Cesarean sections and fewer podalic versions.

CONCLUSION

1. In all cephalic presentations occiput posterior position should be anticipated until definitely proven otherwise.

2. No one procedure is suitable for all cases. Weigh the different factors carefully before deciding which to do.

3. The patient should be given sufficient rest and nourishment in order to better stand a long labor which may have to be terminated by an operation.

TREATMENT

Spontaneous delivery without inference	47
Operative inteference	63
Spontaneous rotation and delivery	42
20 primiparae	
22 multiparae	
Posterior spontaneous delivery	5
1 primipara	
4 multiparae	
Spontaneous rotation and forceps	2
Manual rotation and forceps	36
Posterior delivery with forceps	1
Version	18
Cesarean section	6

RECORD OF CASES

Total number	500	
Posterior positions	110	or 22%
Primiparae	69	
Multiparae	41	
R. O. P.	81	
L. O. P.	29	
Overdue	60	
Average age of Cesarean patient	34	yrs.
Average weight of all infants	7¾	lbs.
Average weight of Cesarean infants	9	lbs.
Morbidity—Total	4	
3 Cesarean		
1 manual rotation		
Maternal mortality	0	
Infant mortality	2	

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DISCUSSION

Dr. Thomas Bell Williamson, Mt. Vernon: Management of occipitoposterior position is a condition which has caused considerable discussion among obstetricians. The essayist has brought out his views and the views of a number of our leading men. With some of these I heartily agree, with some I do not.

The diagnosis of occipitoposterior position needs no discussion and I will apply my few alloted minutes to the management of the persistent posterior position.

It has been shown by actual timing that the labor is two to six hours longer, and that the uterine contractions are weaker in the posterior position than in the anterior position, therefore, I would advise strongly against the use of profound amnesia-producing drugs since it is imperative to have the full cooperation of the patient so she can bring the voluntary muscles into action and aid greatly in moulding the head and forcing it down into mid pelvis, or better still to the perineum. However, I heartily agree that some mild form of sedation during the first stage is very beneficial, and if dilatation is slow, the fetus is in good condition, the bag of waters standing, or the head not fixed too firmly in the pelvis, so as to cause pressure necrosis, it is permissible to administer morphine to give the mother about two hours rest, then allow labor to proceed naturally. Amnesia-producing drugs should not be given during the second stage of labor since we need the full cooperation of the patient to effect moulding.

Nourishment, especially fluids, are very essential to the parturient, and if vomiting is present and the patient is in the hospital where intravenous can be given with safety, I would advise the administration of glucose solution.

The case presents an entirely different picture after the cervix is completely dilated or nearly so, and after the rupture of the amniotic sac. If the head continues its gradual descent we let nature proceed undisturbed, but if the head remains stationary for a period of two hours we must resort to operative obstetrics because of the danger of pressure necrosis to the soft parts of the mother.

There are two ways to handle this condition. First, if the head is small and well moulded the forceps may be applied over the ears of the child, a deep mediolateral episiotomy done, and the head delivered in the posterior position. Second, if the head is larger and the degree of moulding less, the method of choice would be the Scanzoni or double application of forceps. Often the head has to be disengaged to effect the rotation, and in that case, even though the forceps are upside down, it can be brought back down into the pelvis where it is less likely to turn back to the posterior position before the forceps can be applied properly.

Podalic version and extraction may be carried out in some cases, but it is certainly dangerous to attempt this if an hour or more has elapsed since the amniotic sac has ruptured because the uterus has clamped down tightly on the child and the danger of rupture of the uterus is greatly increased. However, if podalic version is done and we have difficulty in delivery of the aftercoming head by the Potter method it is much safer to apply forceps to the head and thereby eliminate the possibility of injury to the neck by undue traction in our anxiety to effect a rapid delivery.

If there is any indication for Cesarean section it should be diagnosed before labor starts, and done before rupture of the amniotic sac. The danger of infection increases with every hour after the loss of amniotic fluid and the mortality is high if section is done ten to eighteen hours afterwards.

I shall show some slides to demonstrate head moulding and application of forceps.

Dr. William Cooley, Peoria (closing): I enjoyed Dr. Williamson's discussion very much. He brought out points which I could not because of lack of time.

I agree with Dr. Williamson as far as profound narcosis is concerned. I think with occiput posterior sufficient narcosis should be used so that the mother does not become exhausted and thereby lessening the danger of a constriction ring.

So far as forceps rotation is concerned I think that is an operation no one but an expert should attempt for there is greater danger of injury to fetus and maternal soft parts than when the hand is used. I think it is largely a matter of one's training. I think forceps rotation is all right if one is familiar with the technic but for the average practitioner I do not think it is as safe as manual rotation.

I agree with Dr. Williamson that the proper time to diagnose disproportion is before labor begins. I hope the time will come, if the pelvic cephalometry of Ball proves successful, that every patient can have pelvic measurements made, and until that is done there will be cases now and then that will go into labor and have to be operated on more or less as an emergency, because the external measurements are not absolutely reliable. Forcing the head in the pelvis according to the method of Hillis has proved very valuable to me and I use it routinely.

LONGEVITY

Alexander the Great, Persius and Terence died just under or over thirty years of age. Keats, Shelley and Schubert had their careers cut short. How little this really proves is shown by the fact that the average age at death of the eminent men of antiquity was 66.7 years, while in modern times, 82 noted mathematicians averaged 64.3, 75 poets 64.1, and all the presidents of the United States 68.4. The figures so often cited about increasing the "expectation of life" and supposed to prove this or that, refer to expectation at time of birth. This increase is the result of removing many of the

perils of infancy and early childhood. In the modern era more babies grow up to maturity than before, but among people who arrive at maturity the average do not live to die at a greater age than formerly.

—Medical Bulletin.

THE TEN POINTS SUGGESTED BY THE JUDICIARY COUNCIL OF THE AMERICAN MEDICAL ASSOCIATION

First: All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

Second: No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

Third: Patients must have absolute freedom to choose a duly qualified doctor of medicine who will serve them from among all those qualified to practice and who are willing to give service.

Fourth: The method of giving service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and domination feature of any system.

Fifth: All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

Sixth: However the cost of medical service may be distributed, the immediate cost should be borne by the patient if able to pay at the time the service is rendered.

Seventh: Medical service must have no connection with any cash benefits.

Eighth: Any form of medical service should include within its scope all qualified physicians of the locality covered by its operation who wish to give service under the conditions established.

Ninth: Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.

Tenth: There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession.

STILL ALIVE

Twenty years ago a man named Balthazar Balmint went to a hospital in London for treatment. It was discovered that he was suffering from a very rare bone disease, which would probably end his life very soon. The doctors offered to pay the sick man, on condition that he would will his body to them, one pound sterling per month during his life, and to give his heirs seven pounds sterling. However, Balmint is still living; the hospital continues to pay him an allowance, and this false diagnosis has already cost about 18,000 francs.—Naturisme (Paris), quoted in New York State J. Med.

Society Proceedings

WHITESIDE COUNTY

The Whiteside County Medical Society held its regular summer meeting and fish fry at Prophetstown, Ill., at which time three members of our society with a combined number of years in practice of one hundred and fifty-three years were honored.

The following members were honored:

Dr. H. J. Heusinkveld, Fulton, Ill., who has practiced fifty-three years in Fulton and is seventy-eight years old and still active in practice.

Dr. F. Fitzgerald, Morrison, Ill., who has practiced fifty-two years in Illinois.

Dr. Jane Keefer, Sterling, Ill., who has practiced forty-eight years in Sterling, Ill., and discontinued her office one month ago.

Dr. R. K. Packard, President of the Illinois State Medical, was present and gave an address on "The Practice of Medicine Then and Now."

Dr. W. H. Perry, Sterling, Ill., gave a talk on his recent visit to the Leprosy Colony in Honolulu.

There were fifty members and friends present.

Marriages

Jacob H. Brotman, Savanna, Ill., to Miss Sarah Paley of Clinton, Iowa, in Morrison, April 16.

Thomas F. Harmon, Springfield, to Miss Eleanor Virginia Calley, of Oklahoma City, May 12.

Lawrence F. Isenhart, Mount Carroll, Ill., to Miss Marjorie Knowlton of Chicago, in Oregon, April 1.

Albert G. Martin to Miss Ruth Baker, both of Aurora, Ill., May 1.

Francis Gilbert Zeier to Miss Angeline Catherine Jochum, both of Chicago, recently.

Personals

Dr. John W. H. Pollard, health commissioner of Evanston for eleven years, has resigned, effective September 1, on account of ill health.

Dr. Karl M. Beck has been appointed superintendent of the Lake County General Hospital,

Waukegan; he will also serve as county physician and succeeds Dr. Charles Lieber, who is returning to private practice, it is reported.

Dr. Max Thorek addressed the Chicago Women's Club June 30, 1937, on "Chicago, the Medical Center."

Dr. Max Thorek has been made U. S. Delegate to the International Congress of Hepatic Insufficiencies which meets in France in September, 1937.

Dr. and Mrs. William Allen Pusey were honored in Elizabethtown, Ky., July 13, when a public reception commemorated their fiftieth wedding anniversary. The celebration was held at the Community House, which was given to the town by Dr. Pusey and his brother, Dr. Brown Pusey. Both were born in Elizabethtown. The former is a past president of the American Medical Association.

Dr. and Mrs. Thomas A. McTaggart, Pownee, observed their fiftieth wedding anniversary, June 22.

Dr. Arthur K. Drake has resigned as medical director of the Elmgrove Sanatorium, Bushnell, on account of ill health.

Maud Slye, A. B., associate professor of pathology, school of medicine at the University of Chicago, received the honorary degree of doctor of science from Brown University, Providence, R. I., June 21.

Dr. Julius B. Stokes, assistant medical director of the Ottawa Tuberculosis Sanatorium, Ottawa, has been appointed medical superintendent of the Livingston County Tuberculosis Sanatorium, succeeding Dr. Donald W. Tripodi, Pontiac, resigned.

Sewall Wright, Sc.D., professor zoology, University of Chicago, will address a joint meeting of the Institute of Medicine of Chicago and the Chicago Society of Internal Medicine, October 25, on "The Hereditary Factor in Abnormal Development."

Paul N. Leech, Ph.D., Secretary, Council on Pharmacy and Chemistry, American Medical Association, gave the commencement address at the Philadelphia College of Pharmacy and Science, June 9; his subject was "Intelligent Questioning."

Leslie B. Arey, Ph.D., Robert Laughlin Rea professor of anatomy, Northwestern University Medical School, received the honorary degree of doctor of science from Colby College, Waterville, Maine, at its one hundred and sixteenth commencement.

Dr. William J. Bryan, superintendent of the Missouri State Sanatorium, Mount Vernon, Mo., has been appointed superintendent of the Rockford Municipal Sanatorium, succeeding Dr. Robinson Bosworth, who resigned recently to take charge of the St. Clair County Sanatorium, now under construction at East St. Louis.

Dr. Richard H. Jaffé, Chicago, discussed "Tumors and Tumor-like Lesions of the Breast" before the Sangamon County Medical Society, Springfield, May 6.

Dr. Julius Steinfeld, Peoria, discussed "The Principles and Medical Value of Psychanalysis" before the Peoria City Medical Society, May 4.

Dr. Thomas P. Foley has been appointed a member of the medical examining committee of the Illinois State Department of Registration. Dr. Foley was secretary of the Chicago Medical Society from 1932 to 1934 and president in 1936. He has been chairman of the department of medicine at Oak Park Hospital since 1929.

At the Annual Meeting of the Chicago Society of Internal Medicine the following officers were elected: president, Don C. Sutton; vice-president, L. N. Katz; secretary-treasurer, Clarence F. G. Brown.

Dr. Paul H. Harmon, Chicago, gave an illustrated talk on "Poliomyelitis" to the McDonough County Medical Society, Macomb, Illinois, on Wednesday, July 14.

Dr. Harmon also showed his moving pictures on "The Treatment of Poliomyelitis in the Residual and Stationary stages."

S. M. Feinberg addressed the Hancock County Medical Society July 21: subject, "Summer Allergy," at the Annual Summer meeting held at Hamilton, Illinois.

News Notes

—At the annual meeting of the Chicago Gynecological Society the following officers were elected: President, Dr. George de Tarnowsky; president-elect, Dr. David A. Horner; vice-president, Dr. Julius E. Lackner; treasurer, Dr George H. Gardner; secretary, Dr. Edward Allen; pathologist, Dr. R. A. Lifvendahl; editor, Dr. R. M. Grier.

—Wards of the Illinois Children's Home and Aid Society are being tested for syphilis as a part of the general campaign against venereal diseases carried on throughout the state, it was announced July 11. The tests are being given to 2,000 wards of the society under the direction of Dr. Mandel Spivek of the Children's Memorial Hospital. The society has a turnover of about 500 children a year and as new wards are accepted they will be examined. This program is the first of its kind ever carried on by any children's aid organization in the country, it was stated. The project will cost between $3,500 and $5,000 a year and contributions are being sought to help defray the expense.

—A new four story wing to the Moline City Hospital, costing about $256,000, was dedicated May 10. The new addition provides four operating rooms, two delivery rooms and accommodations for forty patients, giving the institution a total capacity of 170 beds.

—The Chicago State Hospital was host to the Irving Park Branch of the Chicago Medical Society recently. In addition to Dr. Edward F. Dombrowski, managing officer, other speakers included Drs. Frank S. Rankin on "Sleep Induced by Sodium Amytal in Psychotic Patients"; Hyman H. Goldstein, "Traumatic Psychoses," and the late Barnet Lemchen, "Brain Pathology and Mental Alienation."

—The name of the Chicago Fresh Air Hospital has been changed to the Birchwood Park Sanitarium. The policy of the hospital has also been changed to permit physicians in private practice to send their patients to the hospital for personal treatment. Founded in 1909 as a tuberculosis hospital, the sanatorium has gradually changed during the past few years and now takes patients suffering from nervous disorders, heart disease and mild mental disease, aged and infirm persons requiring nursing care or rest, and diet cases. The name was changed to avoid confusion between the present policy and its original purpose.

—The window display, sponsored by the Chicago Medical Society and prepared by the Educational Window, in the Washington Street lobby of the Marshall Field & Co. Annex should be of interest to doctors. The material has been loaned by the Library of Northwestern University School of Medicine.

The window contains a picture of the founders of the Chicago Medical Society, a saddle bag used by a physician about one hundred years ago and instrument and medicine cases carried about fifty years ago.

—The Educational Committee is trying a new form of radio program which it hopes will appeal to the public. Instead of having seven or ten minute talks, the programs are in the form of dialogues with two physicians or one physician and the station announcer taking part.

—The newly created state division for physically handicapped children, state department of public welfare, held its first clinic in Shelbyville, June 25. Of seventy children of Shelby and adjacent counties who were examined, 60 per cent were under 10 years of age and about 80 per cent of them have been attending school despite severe handicaps, resulting from infantile paralysis, spastic paralysis and congenital deformities, among other conditions. No tuberculosis was found. Children in need of hospital care will be assigned to the Macon County Hospital, Decatur, and to St. John's Sanitarium, Riverton, it was stated. Other clinics are planned as a part of the department's program, which is financed by a state appropriation of $120,000 and a similar one from the federal government.

—Construction of a new building for Wesley Memorial Hospital began June 19 when Mr. George H. Jones turned the first spadeful of earth on the site at Superior Street and Fairbanks Court. Mr. Jones provided the funds for the building, which will cost about $2,000,000. The main portion of the building will be fifteen stories high, with a tower section extending four stories higher. The first floor will be used for executive offices, staff and lecture rooms, doctors' lounge, the admission department, two emergency operating roms and a necropsy amphitheater. On the second floor will be the physical therapy and x-ray departments, medical library and records, kitchens, dining rooms and cafeteria. The third floor will comprise a diagnostic unit, a general waiting room and a special department for eye, ear, nose and throat. The fourth floor will have fourteen operating rooms air conditioned all the year. The other floors will contain beds arranged in wards and in individual rooms. The entire twelfth floor will be devoted to obstetrics and be completely air conditioned. The seventeenth floor of the tower will be used for a lounge.

One floor of the new structure will be given over to adolescents. The building, which has been designed so that sunlight will reach every patient sometime during the day, will accommodate 420 beds. There will be 140 free beds available for teaching, while facilities for all classes of patients will be provided. Seventy rooms will be available for persons of moderate means. The present Wesley Memorial Hospital has occupied a site at Twenty-Fifth and Dearborn streets since 1888. In 1914 it was endowed with $1,000,000 for teaching purposes by the late James Deering in memory of his father and sister, William Deering and Abby Deering Howe. Under the terms of the deed, the staff of the hospital must be chosen from Northwestern University Medical School. The new building is expected to be ready for occupancy Dec. 25, 1938, the fiftieth anniversary of the first admission of a patient to Wesley.

Deaths

Louise Acres, Western Springs, Ill.; Woman's Hospital Medical College, Chicago, 1890; aged 78; died, April 27.

Edward Carroll Alvis, Benton, Ill.; St. Louis College of Physicians and Surgeons, 1905; member of the Illinois State Medical Society; aged 66; died, April 30, of hypernephroma.

Harry Brawley Bailey, Rockford, Ill.; Rush Medical College, Chicago, 1902; aged 59; died, May 7, in McAllen, Texas, of coronary thrombosis.

Harold Fonseca Da Costa, Chicago; Loyola University School of Medicine, Chicago, 1922; member of the Illinois State Medical Society; aged 46; died, May 23, of coronary thrombosis.

Sol D. Ebersole, Chicago; Hahnemann Medical College and Hospital, Chicago, 1891; aged 71; died, April 10, of lobar pneumonia and nephritis.

John Christian Eigenmann, Springfield, Ill.; Northwestern University Medical School, Chicago, 1897; aged 65; died, May 10, of malignant teratoma.

Edgar Garland Ferrier, Oak Forest, Ill.; Jenner Medical College, Chicago, 1916; on the staff of the Cook County Tuberculosis Hospital; aged 57; died suddenly, April 16, in Chicago, of chronic myocarditis.

Elmer Alfred Gunderson, Elgin, Ill.: Bennett College of Eclectic Medicine and Surgery, Chicago, 1915; served during the World War; aged 44; on the staff of the Veterans Administration Facility, Hines, where he died, April 28, of pneumonia.

James M. Haney, Centralia, Ill.; Northwestern University Medical School, Chicago, 1897; member of the Illinois State Medical Society; aged 73; died, April 20, in St. Mary's Hospital, of carcinoma of the lung.

George William Haskins, Chicago; Chicago Medical College, 1889; professor of metallurgy, 1891-1892, and professor of metallurgy and of prosthetic technic, 1892-1897, Northwestern University Dental School; also a dentist; aged 78; died suddenly, April 30, of chronic myocarditis.

Harry John Herman, Jerseyville, Ill.; Northwestern University Medical School, Chicago, 1933; a Fellow A. M. A.; aged 34; died, April 15, of lobar pneumonia.

George Paul Katzenstein, Chicago; University of Pennsylvania Department of Medicine, Philadelphia, 1900; formerly instructor on diseases of the skin, Philadelphia Polyclinic; at one time on the staffs of the John B. Stetson Hospital and the Jewish Hospital, Philadelphia; aged 63; died, April 22, of cerebral hemorrhage and chronic nephritis.

Ignatz Lange, Chicago; Rush Medical College, Chicago, 1888; aged 75; died, April 27, in the Columbus Hospital of ruptured duodenal ulcer.

Henry Covington Macy, Chicago; Bellevue Hospital Medical College, New York, 1897; aged 70; died, April 2, of chronic myocarditis and bronchopneumonia.

Sally Josephine McCollum, Chicago; Illinois Medical College, Chicago, 1898; Northwestern University Woman's Medical School, Chicago, 1899; member of the Illinois State Medical Society and the Associated Anesthetists of the United States and Canada; on the staff of the Women and Children's Hospital; aged 76; died, April 24, of arteriosclerosis, diabetes mellitus and lobar pneumonia.

Horace R. Rankin, Chicago; University of Louisville (Ky.) Medical Department, 1897; aged 67; died, April 11, in the Cook County Hospital, of pulmonary tuberculosis.

John H. Sayrs, Zion, Ill.; Medical College of Ohio, Cincinnati, 1884; aged 79; died suddenly, April 12, of angina pectoris.

William Edwards Shastid, Pittsfield, Ill.; Jefferson Medical College of Philadelphia, 1886; member of the Illinois State Medical Society; formerly secretary of the Pike County Medical Society; aged 74; died, April 4, of cerebral hemorrhage.

Viola Elzada Shaw Terwilliger, Bradford, Ill.; Northwestern University Woman's Medical School, Chicago, 1898; aged 65; died, April 21, in the Methodist Hospital, Peoria, of pneumonia.

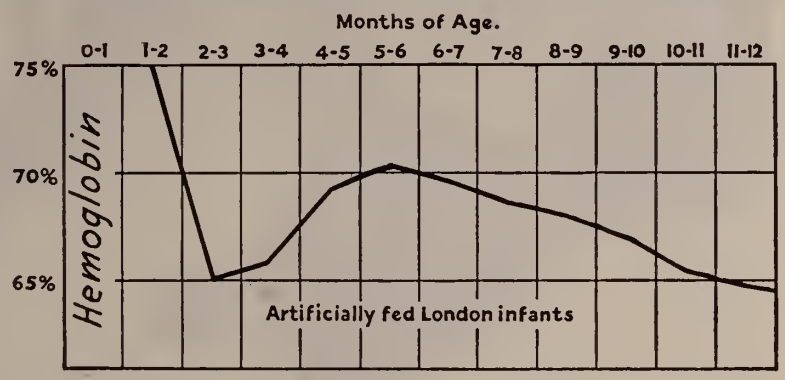
Harry Walter Woodruff, Joliet, Ill.; Harvard University Medical School, Boston, 1933; resident in ophthalmology at the St. Louis (Mo.) City Hospital; aged 29; disappeared Dec. 29, 1936, and was found dead, April 27, near St. James, Mo.

John Roscoe Young, Mattoon, Ill.; Eclectic Medical Institute, Cincinnati, 1888; aged 85; died, March 23, of uremia and nephritis.

Erle Will Zook, Peoria, Ill.; Rush Medical College, Chicago, 1895; aged 64; formerly on the staff of the Peoria State Hospital; died, April 7, of pneumonia following a sinus infection.

Nutritional Anemia in Infants

The accompanying chart of the hemoglobin level in the blood of infants is based on more than 1,000 clinical cases studied by Mackay. The sharp drop in hemoglobin during the early months of life has also been reported by a number of other authorities. It is noteworthy that this fall in hemoglobin has been found to parallel closely that of diminishing iron reserve in the infant's liver. The usual milk formula of infants in early life further contributes to this anemia because milk is notably low in iron. It is now possible, however, to increase significantly the iron intake of bottle-fed infants from birth by feeding Dextri-Maltose With Vitamin B in the milk formula. After the third month Pablum as the first solid food offers substantial amounts of iron for both breast- and bottle-fed babies.



Reasons for Early Pablum Feedings

1. The iron stored in the infant's liver at birth is rapidly depleted during the first months of life. (Mackay,[1] Elvehjem.[2])

2. During this period the infant's diet contains very little iron—1.44 mg. per day from the average bottle formulae of 20 ounces, or possibly 1.7 mg. per day from 28 ounces of breast milk. (Holt.[3])

For these reasons, and also because of the low hemoglobin values so frequent among pregnant and nursing mothers (Coons,[4] Galloway[5]), the pediatric trend is constantly toward the addition of iron-containing foods at an earlier age, as early as the third or fourth month. (Blatt,[6] Glazier,[7] Lynch[8].)

The Choice of the Iron-Containing Food

1. Many foods reputed to be high in iron actually add very few milligrams to the diet because much of the iron is lost in cooking or because the amount fed is necessarily small or because the food has a high percentage of water. Strained spinach, for instance, contains only 1 to 1.4 mg. of iron per 100 gm. (Bridges.[9])

2. To be effective, food iron should be in soluble form. Some foods fairly high in total iron are low in soluble iron. (Summerfeldt.[10])

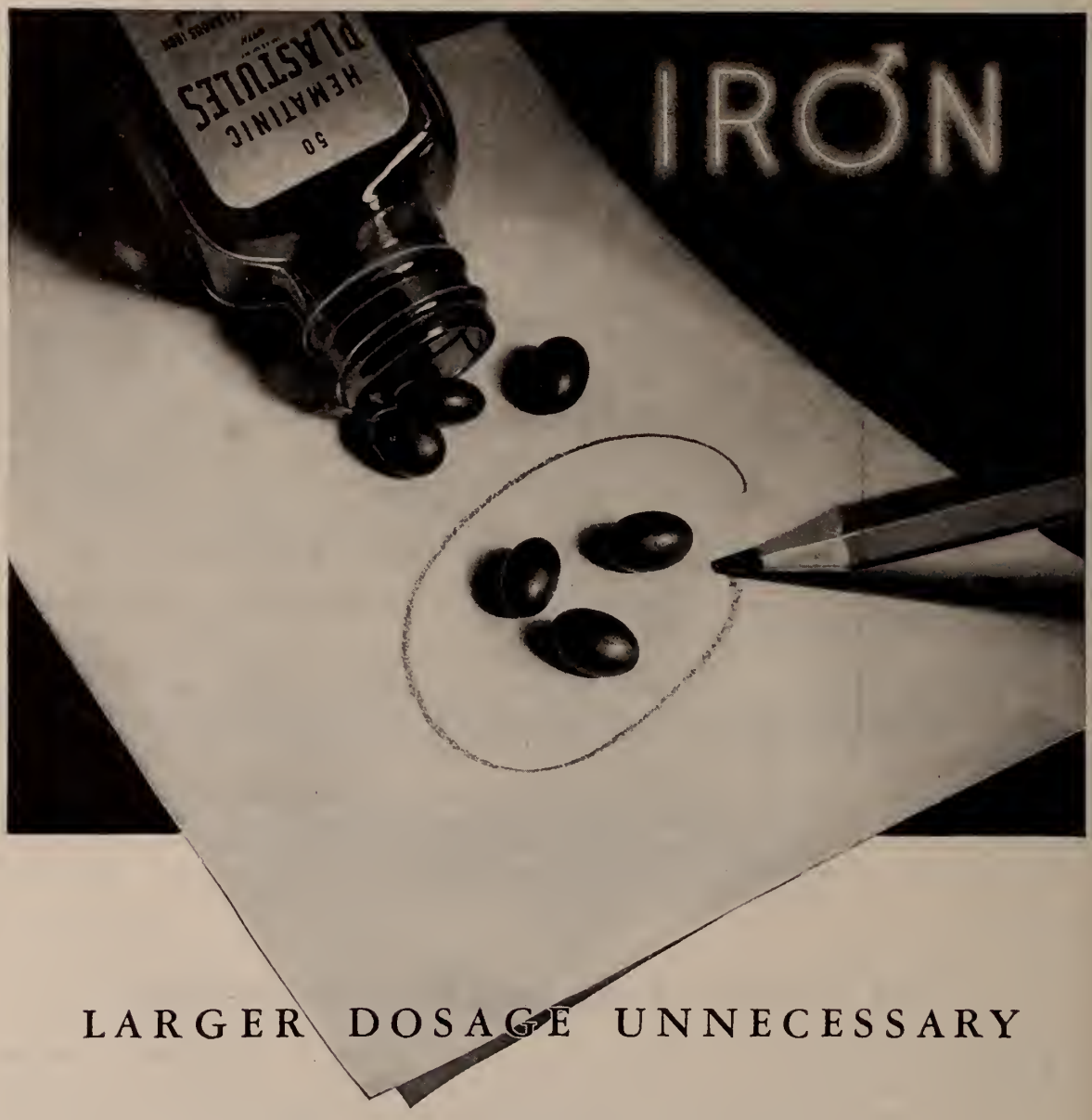
3. **Pablum is high both in total iron (30 mg. per 100 gm.) and soluble iron (7.8 mg. per 100 gm.) and can be fed in significant amounts without digestive upsets as early as the third month, before the initial store of iron in the liver is depleted. Pablum also forms an iron-valuable addition to the diet of pregnant and nursing mothers.**

Pablum (Mead's Cereal thoroughly cooked and dried) consists of wheatmeal, oatmeal, cornmeal, wheat embryo, brewers' yeast, alfalfa leaf, beef bone, iron salt and sodium chloride.

[1-10] Bibliography on request.

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Obstetric & Gynecologic Nursing. By Frederick H. Falls, M.D. and Jane R. McLaughlin, R.N. Illustrated by Charles S. Holt, St. Louis. The C. V. Mosby Company. 1937. Price, $3.00.

In this work the authors have kept in mind the interests and the needs of nurses in all fields; the private duty nurse serving the general practitioner; the institutional nurse serving the doctors on the hospital staff; and the public health nurse.

An Introduction to Dermatology. By Richard L. Sutton and Richard L. Sutton. Jr. Third edition. St. Louis. The C. V. Mosby Company. 1937. Price, $5.00.

In this work much of the material that has accumulated since the publication of the previous edition has been completely rewritten.

The parasitic affections have been subdivided into new chapters and the entire subject generally renovated and brought up-to-date.

Forty-five new illustrations have been added. Much new information regarding Therapy has been introduced. Descriptions of a number of new diseases are included for the first time.

Synopsis of Digestive Diseases. By John L. Cantor, M.D. Illustrated. St. Louis. The C. V. Mosby Company. 1937. Price, $3.50.

This work is an attempt to present simply, clearly and concisely, the essential facts concerning the diseases of digestion.

In the preparation of this book the writer has drawn on his clinical records for much of his basic statistics, as well as on his practical experience in teaching both undergraduate and graduate students.

Laboratory Diagnosis of Syphilis. By Harry Eagle, M.D. with foreword by J. Earl Moore, M.D. St. Louis. The C. V. Mosby Company. 1937. Price, $5.00.

This work is intended as a laboratory manual for the technician. This work is very timely for an intelligent interpretation of the laboratory report by the physician is impossible unless he is familiar with the numerous sources of error inherent in the technic.

Synopsis of Gynecology. Based of the Text Book Diseases of Women. By Harry Sturgeon Crossen, M.D. and Robert James Crossen, M.D. Second edition. St. Louis. The C. V. Mosby Company. 1937. Price, $3.00.

The Treatment by Diet. By Clifford J. Barborka, M.D. Illustrated. Third edition, revised. Philadelphia-London-Montreal. J. B. Lippincott Company. 1937. Price, $5.00.

In this third edition no changes have been made in the general plan. The errors in the previous editions have been corrected. A discussion of the present status of the clinical aspect of the vitamins has been added; the present conception of the use of protamine zinc insulin is given; and the discussion of obesity has been broadened.

The Principles and Practice of Clinical Psychiatry. By Morris Braude, M.D. Philadelphia. P. Blakiston's Son & Co., Ltd. Price, $4.00.

Clinical Allergy: By Louis Tuft, M. D., Chief of Clinic of Allergy and Applied Immunology, Temple University Hospital; Associate in Immunology, Temple University School of Medicine; Director of Laboratories, Pennsylvania Department of Health, Philadelphia. Introduction by John A. Kolmer, M. D., Dr.P.H., D.Sc., LL.D., L.H.D., Professor of Medicine, Temple University; Director of Research Institute of Cutaneous Medicine, Philadelphia. 711 pages with 82 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth $8.00 net.

At present there is a firm conviction that Allergy is primarily responsible for so many diseases and symptom-complexes in human beings that it is to be expected in practically every specialty in medicine and surgery and no general practitioner or specialist can hope to escape from responsibility in its diagnosis and treatment.

There has been a real and urgent need for a book on this subject, written primarily for the general practitioner and specialist. This work brings the subject up-to-date in a concise and readable manner.

Health Education of the Public. A Practical Manual of Technic: By W. W. Bauer, B. S., M. D., Director, Bureau of Health and Public Instruction, American Medical Association; Associate Editor of Hygeia, The Health Magazine; and Thomas G. Hull, Ph.D., Director, Scientific Exhibit, American Medical Association; Associate Professor of Bacteriology, University of Illinois, College of Medicine. 227 pages with 39 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth $2.50 net.

The authors of this book have had a world of experience and their information and their work are adequately reflected in this book. The physician or the worker in the field of public health will find here opportunity to accumulate in a short time knowledge which otherwise might be gained only with great difficulty.

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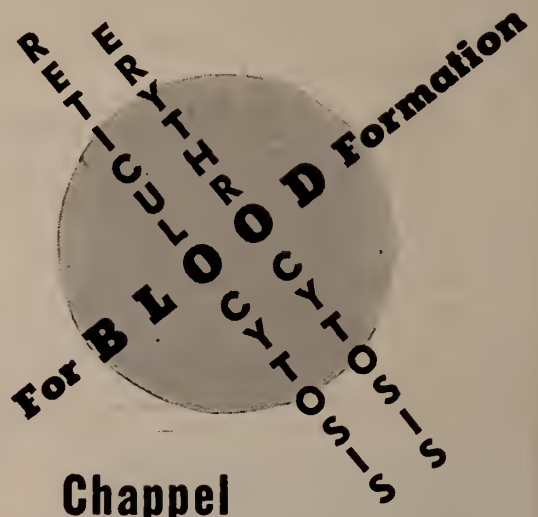
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Potassium metabolism and distribution are apparently controlled by the adrenal medulla hormone. Potassium is capable of exerting all of the effects produced by epinephrine. The authors conclude that, "one of the functions of the adrenal glands is to maintain a constant distribution of potassium. Camp and Higgins, *J. Pharmacol.* 57:376 (August) 1936.

Growth, endocrine regulation and metabolic regulation form the functional trinity of the anterior pituitary gland. Without doubt this gland is one of the most important regulatory organs and in some species it is of vital necessity. Houssay, B. A., *New England J. Med.* 214:963 (May 14) 1936.



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CONDITION SATISFACTORY. By Sandor Puder. With a foreword by Frigyes Karinthy. New York. London. Alfred A. Knopf. 1937. Price, $2.00.

The author of this book, a practicing physician, was forced to undergo three successive operations. What he experienced—what he saw, felt and thought—during that dangerous and painful period forms the subject of this extraordinary book.

A healthy man must feel unhappy when he listens to the medical ballyhoo on the radio and realizes how easily, surely and pleasantly he could be cured of many interesting ailments, if he only had them.

Tests of canned pineapple juice showed it to be "a good source of vitamins A and B, a fair source of vitamin C, and to contain a measurable quantity of vitamin G."

PACIFISTS

In general, when a pacifist is aggressively anti-aggressive, fanatically so, with overwhelming convictions as to the rightness of his theories, and in particular with a feeling of uplift and self-satisfaction in his work, we may suspect that he is in difficulty with his own instincts. He is still dealing with his own aggression by projection. He has an enemy to attack, but that enemy is now war. It is this type which is the greatest potential danger to society, for on the strength of his good faith he will expect to be excused scrutiny. Not only so, he will expect us to accept his panaceas as further evidence of virtue. And all the time he may be secretly driving himself and everyone else towards a war conflagration.—Edward Glover, London, in Character and Personality, June 1936.

Whooping cough may be diagnosed by the complement fixation test with B. pertussis as the antigen. It is positive in more than 90 per cent of cases even before severe cough develops. It is possible to secure complement fixation by prophylactic vaccination with Sauer's Vaccine. Doughtry-Denmark, L. *Am. J. Dis-Child.* 52:587, 1936.

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Diabetes is increasing. Early diagnosis with proper treatment following, enables the patient to live a useful life. Most diabetics are fat, though of course, not every fat person gets diabetes.

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Diabetes cannot be cured. It can be controlled, by the use of insulin plus willingness on the part of the patient to modify his living habits. There is some evidence that persons who get diabetes may live longer than they would have if they had not developed the disease. It was Sir William Osler's formula for longevity, to get some chronic disease and nurse it.

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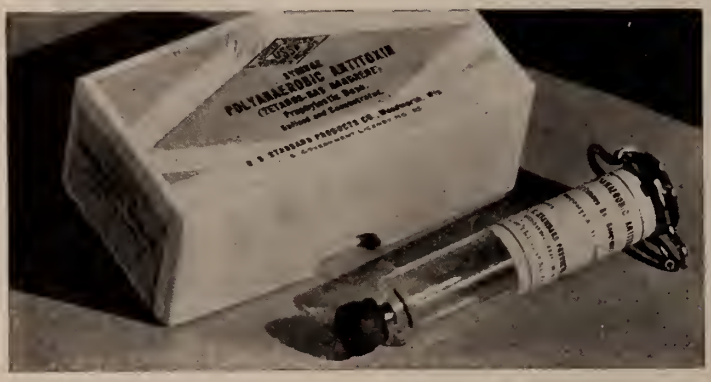
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WOODWORTH, WISCONSIN

ROLE OF SYPHILIS OF NERVOUS SYSTEM IN PRODUCTION OF MENTAL DISEASE SURVEY OF VARIOUS FORMS OF NEUROSYPHILIS OCCURRING AT THE BOSTON PSYCHOPATHIC HOSPITAL FROM 1912 TO 1934.

Merrill Moore and H. Houston Merritt, Boston (*Journal A. M. A.*, Oct. 17, 1936), state that syphilis of the central nervous system was considered as the cause of the mental disease in 2,468 patients admitted to the Boston Psychopathic Hospital in the first twenty-two years of its existence—from 1912 to 1934. When corrections are made in the total admissions for the number of patients who were found to be "not psychotic" and for the number of readmissions, syphilis of the nervous system was considered the cause of mental disease in 9.3 per cent of the total. Dementia paralytica and the tabetic form of dementia paralytica constituted 94 per cent of the 2,468 cases of mental disease due to syphilis of the central nervous system.

INFLATION

Inflation on the grand scale is one of the greatest disasters which can overtake a people. It attacks the life of every man, woman, and child in the community, and is practically impossible for the ordinary person to fight against it.—James Truslow Adams, in Scribner's Magazine.

CIVILIZATION AND EMPLOYMENT

The only way by which employment can be provided is by the increase, not by the decrease (as planned by the Communists), of civilization; by multiplying needs, not by reducing the standard of living.—Nesta Webster.

Cure of infantile scurvy may be expected in the majority of cases in a period of two weeks when ascorbic (cevitamic) acid is used in adequate dosage. The remarkably rapid recovery following the use of pure vitamin C causes the authors to remark, "one should use the tablets (cevitamic acid) not only in treatment of scurvy of young children, but also as a prophylactic measure when they refuse or tolerate fruit juice poorly." Letondal, Paul., *Canad. M. A. J.* 35:646, 1936.

Sex determination may be influenced, in dogs, by means of hormones. By feeding follicular hormone (theelin) to the bitch before conception it is possible to raise the ratio of male to females in the offspring. Koch., W., *Klin. Wchnschr.* 15:1135 (August 8) 1936.

Further evidence that vitamin C has definite antitoxic properties for diphtheria toxin is presented. The addition of small amounts of vitamin C to a culture of C. diphtheria inhibits toxin production. Kligler, I. J., *Nature* 138:291 (August 15) 1936.

(Continued from page 30)

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"Going around with women a lot keeps me young."

"How come?"

"I started going around with them four years ago, when I was a freshman, and I'm still a freshman."

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Proud Dad: "Yes, indeed, but his P. A. still supports him."

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FREEZING AUNTY

"How can I make anti-freeze?"

"Hide her woolen pajamas."

—Sniper.

Additional evidence that renal calculi may be prevented from recurring postoperatively by dietetic measures is presented. It is recommended that a diet high in vitamin A be given following operations for calculus. This diet should have an alkaline or acid ash depending upon the previous reactions of the urine and the chemical constitutents of the calculi removed at operation. A four-year trial of this diet shows recurrences of renal calculus in but 4.7 per cent of cases as contrasted with approximately 15 per cent previously. Higgins, C. C., *Surg., Gynec. Obst.* 63:23 (July) 1936.

Theelin, administered to acromegalics, exerted an inhibitory effect on the abnormal growth. Following daily injection of 1000 to 2000 international units over a period of months it was noted that enlargement of feet, hands and head had ceased; and in a few cases there was a decrease in size of these structures. Disappearance of headache was noted in several of the cases following Theelin therapy. Kirklin and Wilder, *Proc. Staff Meet. Mayo Clin.* 11:121 (February 19) 1936.

The incidence of diarrhea in infants and young children may be diminished by: better feeding formulas; adequate fluid intake; cleaner collection, storage and pasteurization of milk; more adequate garbage disposal; better screening against flies; more sane clothing habits; an appreciation of the causes of diarrhea and their correction, especially as regards the parenteral infection. McBride, R. H., *J. Iowa M. Soc.* 25:190 (April) 1936.

Further evidence that acne vulgaris may be on the basis of endocrine dysfunction is submitted. Approximately 90 per cent of female patients having acne also showed abnormally low estrin content of urine and blood. Of this series 60 per cent (38 patients) responded favorably to estrin (theelin) and plolan (antuitrin) therapy. Rosenthal, T., *J. Lancet,* 56:496 (September) 1936.

"Are rosy cheeks a sign of good health?"

"I should say they are."

"Well, I saw a girl the other day who was a lot healthier on one side than the other."

"Why do you close your eyes every time you take a drink?"

"My doctor said I must not look at liquor."

Busy executive: "Let's sit down and get busy with our work. Miss Blondie."

Miss Blondie: "All right, which chair shall we sit in?"

A Scientific young Doctor O'Neal,
Exploited his own sex appeal.
The demands from his clients,
Ruined his Science,
And now he's just old "Doc" O'Neal.

ARE YOU A PUBLIC ENEMY?

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The road hog.
The impatient driver.
The careless pedestrian.
The driver who insists on being ahead of the pack.
The driver who won't signal.
The double parker.
The driver who won't dim his lights.
The driver who turns in the middle of the street.
The driver who weaves in and out of traffic.
The horn blower.

You drivers—where do YOU stand in the above lineup of public enemies? Check up. Maybe the check will keep you or somebody else alive. Be as decent a-wheel as you are a-foot and escape being a criminal—or a corpse.

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Scarlet fever controlled by combination of active and passive immunization is reported. An epidemic among 436 students in an agricultural school was successfully controlled by immunization of susceptible patients with scarlet fever toxin and use of antitoxin in certain cases. Diehl & Hinckley, *J. A. M. A.* 106:1354, 1936.

All humanity is born with a screw loose someplace.

Seventy-five per cent of humanity are classed as Morons; they cannot see in advance of their shadow.

Man does not develop reason until after 40, Women ? ? ?.

"Silence Is Golden," unless you are looking for trouble; Jealousy is still alive.

To be born free of a Stigma (physical) is the most valuable asset a person can possess.

People who constantly complain of Illness, die of Disease at a ripe old age.
versa.

Many a hiccough is a message from departed spirits.

A girl admires the tone of a bachelor's voice when there's a ring in it.—*Tit-Bits.*

The honeymoon may be said to be over when he discovers that his pet lamb is really a little bossy.—*Boston Herald.*



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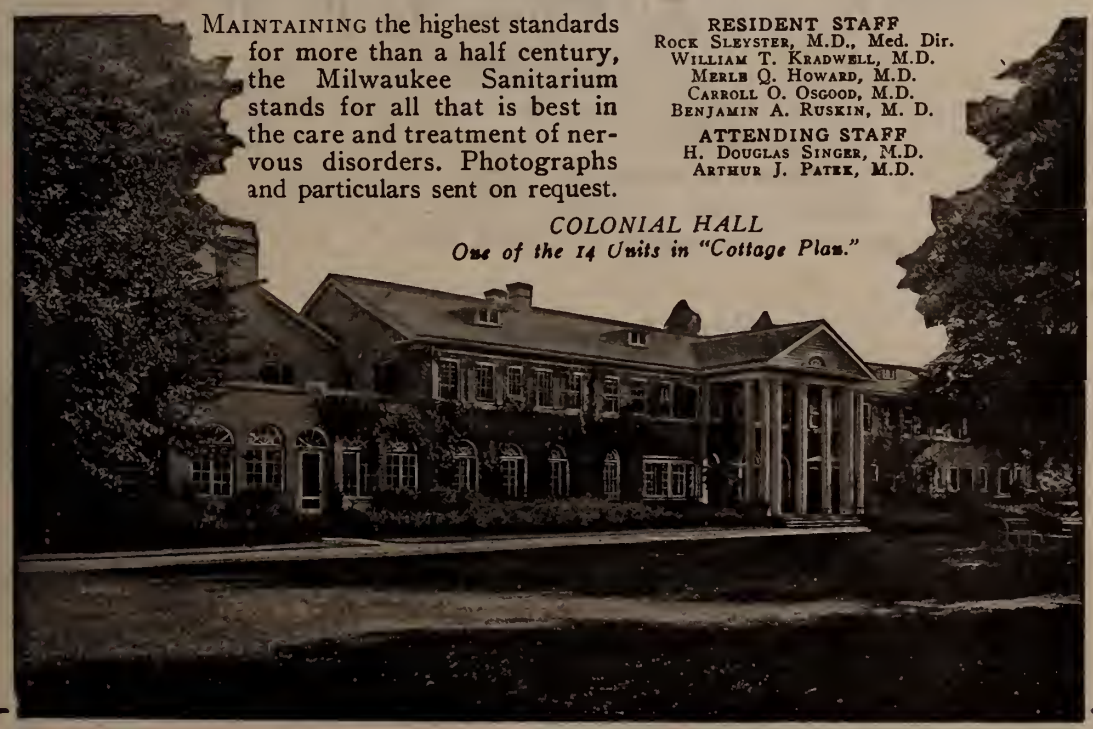
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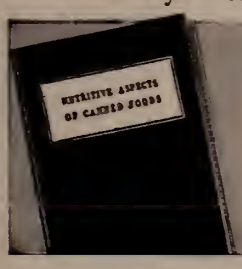
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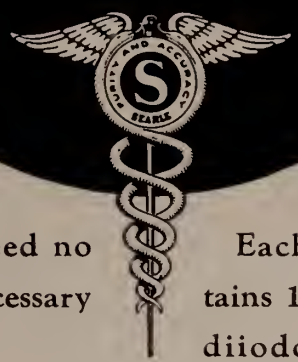
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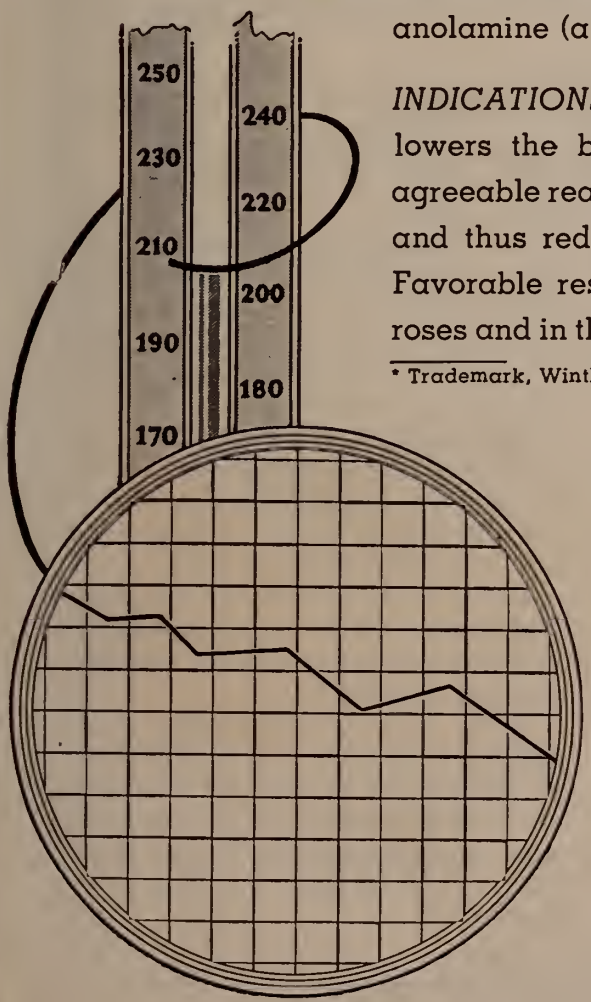
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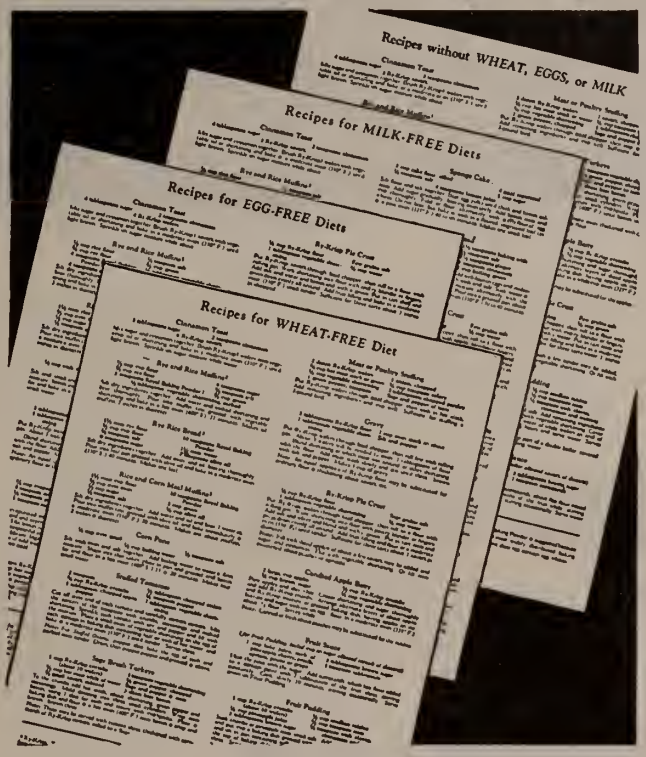
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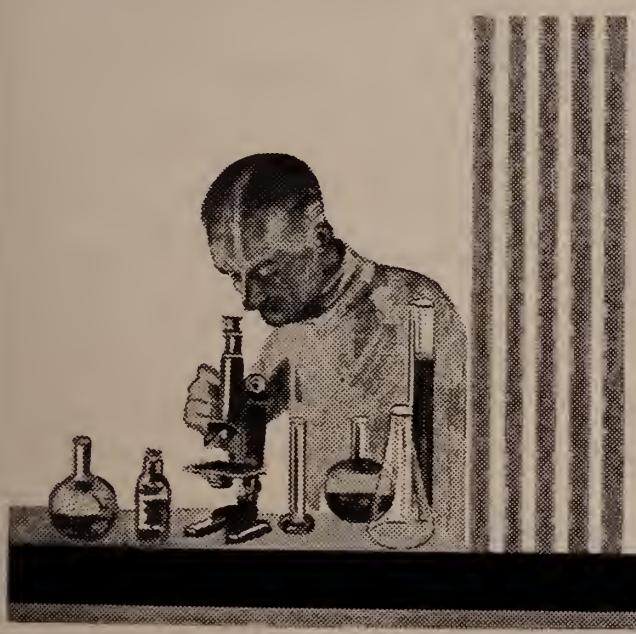
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Editorials

HOW CLOSE TO RUSSIA IS WISCONSIN?

Foundations are notoriously socialistic because the personnel invariably is engaged in taking away from rich men, the money that rich men whose consciences trouble them or have taken away, often by peculiar practices, from the helpless poor, to give back to the helpless poor again by methods that keep on making the helpless poor and the indigent taxpayer more helplessly poor and more indigently tax-paying.

Which is a mouthful! But so are all the "philanthropic(?)" foundations.

Just now Wisconsin is getting a nauseous mouthful of such philanthropy(?). Some of the few Americans who are still left in Wisconsin are beginning to ask questions as to where the money comes from that is starting to make a new-style *"badger game"* out of the old-style "Badger State."

The animus for this question-asking came directly when a Socialist-Progressive State Assemblyman by the name of Biemiller offered a group of six bills to the recent session of Wisconsin legislature that would provide amply and entirely for the complete socialization of medicine and its practitioners throughout the State of Wisconsin.

An eye-witness statement of the situation can be quoted neatly from an article that appeared in *The Milwaukee Journal* under date of Thursday, May 6, 1937, under the signature of Will C. Conrad and which was headed

BILLS FOR STATE MEDICINE MAKE LEGISLATORS GASP

WISCONSIN WORKERS WOULD PAY MILLIONS UPON MILLIONS ANNUALLY UNDER PROPOSALS OF ASSEMBLYMAN BIEMILLER

Coupled with what the Democratic Senator from Illinois is advocating down in Washington it would seem easier for the average American citizen to lie down and die than to try to work

if he is well or to recover if he is ill. In part the article referred to reads as follows:

By Will C. Conrad

"Ninety-five out of every 100 residents of Wisconsin treated for their ills under some form of contract medicine.

"Ninety-five out of every 100 doctors, their present private practice gone, treating people by contract.

"The whole medical profession of the state made subservient to a director of health insurance and a medical officer appointed to be his adviser.

"Residents compelled to present themselves for medical examination whenever this director so orders.

"The confidential relationship between doctor and patient—the old "family doctor" institution—destroyed.

"The ills of every patient and every family made a matter of public property, because the records of all this treatment would 'be open to inspection and be subject to being copied at any reasonable time as often as the director (of health insurance) may deem necessary.'

"All the hospitals, laboratories, dentists, nurses, even the corner drug stores, brought in under this system and made subservient to it on pain of the destruction of their business or profession.

"In short, the complete socialization of medicine and the care of the sick in Wisconsin.

"Finally, the collection of some $26,000,000 a year from the toilers of the state, and from their employers, to be expended as the director of health insurance might see fit—to be spent by a bureaucrat who need not be a doctor, who would not be under civil service, who might even be a politician getting his job through political pull.

"This would be the result in Wisconsin, according to medical men and the studies they have made, of the enactment by the legislature of a group of six bills offered by Assemblyman Biemiller (Soc.-Prog.) of Milwaukee.

"The bills have even veteran legislators gasping, especially in view of the fact that they carry every evidence of having a lot of force or "push" behind them. They have aroused the medical profession to determined opposition. But as yet the public knows very little about them. What they are, what provisions they contain, where they would lead, should be of wide public interest.

"Bill 852-A is the key bill of the group, designed to take in all the industrial workers of the state and all the office men and women whose salary is not more than $3,120 a year. Each employe would pay 2% of his wages into the fund and his employer 2%. The employe earning $10 a week would have $10.40 deducted from his pay for a year; the employe who earned $30 a week would be minus $31.20 in his pay envelopes; and the $60 a week worker would pay $62.40 annually.

"This money, flowing in like magic—thirteen millions from the 1,645,000 wage earners and thirteen millions from their employers—would all be spent by the director of health insurance and his advisory men and bodies, without even the supervisory powers of the state insurance laws to stay their hands. It would go to contract doctors, who would treat the sick either on a fee basis or on a per capita basis at a fixed rate a year; to hospitals, laboratories and other branches of the healing art, working under contract; to a tremendous office force supervising all this; to still other employes going out over the state to make medical investigations. If there was money left over it would be piled up in a fund to be invested by the state annuity and investment board.

"But suppose there were not enough money to go around to meet all the illness—and the doctors say there would not be if the present high standards were maintained—then what? The director would have the power to reduce the amount of service patients could get any time the director felt that was necessary.

X-Rays Would Be Out First

"And that is what would happen, according to Assemblyman Biemiller. When he was before the house of delegates of the state medical society in conference on these bills, he was asked where cuts could be made if they were necessary. He said the director would probably begin on such things as the x-ray—in other words, *the parts of the medical service to be cut out first would be the things that the poor man now finds it difficult to get.*

"For all this money paid in, the worker would get for a stated number of weeks just such medical service as the director of health insurance decreed and no more. If he went to a hospital

he would get accommodations at the 'lowest per diem rate' that the institution afforded. By the very terms of the law, he would get the poorest that the hospital had.

"Under this plan, say the State Medical Society of Wisconsin and the Wisconsin Hospital association, there would be a gradual lowering of standards in the treatment and care of disease, just as there has been a lowering in those European nations which have adopted state medicine. Gone would be the incentive of the doctor to keep his practice on the highest possible plane, for he would be just a contract man, going wherever he was sent.

"Gone, too, would be the incentive of the hospitals. The only way they could survive would be by constantly lowering their service to meet this 'lowest per diem rate' dictum of the law.

"Gone would be all incentive to push the realms of medicine out by discoveries. No 'contract medicine man' would spend time on that. And the great field of preventive medicine would disappear, as it has almost disappeared in England under a state plan. The doctors would be too busy taking care of cases assigned them by the bureaucrats. They would not be interested in research.

"The second most important of the bills is 850-A, which would authorize the formation of co-operative associations for medical and hospital care. This bill would take care of the rural sections of the state, just as 852-A would take care of the industrial and metropolitan sections. The system would all be by contract and the paying in of money. It would mean accumulation of funds which again would be outside the protection of the insurance laws of the state. These organizations would not have to provide any capital reserves to assure continued service, such as an insurance company would have to do if it went into health insurance.

Counties Could Build Hospitals

"But to go on down the line with Mr. Biemiller's bills—

"Bill 748-A would permit counties to erect joint hospitals and employ staffs and physicians to treat, not just the indigent and the low income groups, but all comers, rich and poor, at the taxpayers' expense. This is state medicine with a vengeance.

"Bill 747-A would permit towns, cities, villages and counties to employ and subsidize physicians, the treatment of the sick to be placed directly under the management and the tender political mercies of town boards, city councils and boards of supervisors.

"Bill 740-A would make it mandatory on county boards to provide systems of medical, dental and hospital care of 'all poor persons receiving relief,' thus fastening these expenditures on the county even though the need for them should disappear through economic recovery.

Doesn't Hope for All

"Finally, if all else fails him, Mr. Biemiller has an ace in the hole. His Bill 662-A is a milder measure for the creation of non-profit associations to sell group hospitalization to subscribers, this time with at least some regard to the insurance laws of the state. But there is no standard of actuarial rates provided for, no standard of service set-up—nothing to assure that these people who paid their money would get the care they need.

"It is rumored that Mr. Biemiller hardly expects his whole program to pass, but that he does hope to get this group hospitalization bill through as an opening wedge.

"Finally, after Mr. Biemiller has declared in bill after bill what the public policy of the state is to be and how the legislature 'finds and declares' the need for the system which he proposes to set up, he has in 661-A a bill creating an interim committee of two senators and three assemblymen to find out in a two-year study whether the state needs it. Doctors are asking: 'Why not find out first?'

Where Ideas Originate

"The background of these bills is almost as interesting as the bills themselves. There is said to be evidence that they did not spring full blown from the brow of Mr. Biemiller. This young man, who zoomed out of eastern universities to become a Socialist educational leader in Wisconsin, who ran for office and who is now going like a house afire in the legislature, is said to have been in touch with sociological foundations that are urging state medicine on this country.

"The Julius Rosenwald fund is interested in this field and has set aside a large sum for its promotion. A representative of this foundation is known to have been in Wisconsin. A Boston foundation is also said to be interested.

"This same group of bills, so it is reported, is to be introduced in the Minnesota legislature when it convenes in special session late this month.

"In other words, if possible, Wisconsin and Minnesota are to be made the 'guinea pigs' of rich foundations which have money to spend for the promotion of socialized medicine."

A proper procedure is to find out *where* Biemiller got his campaign fund?

THE A.M.A. ATLANTIC CITY MEETING

The A. M. A. meeting in Atlantic City in June was an epochal session. It brought together 9,764, with an additional 300 visiting physicians from Canada. It was the greatest assemblage of physicians in the history of medicine and a never before equalled wealth of material both to interest them and to instruct them. And it also gave them, in convention assembled, probably the greatest shock of their lives from Senator J. Hamilton Lewis of Illinois, who claimed he came as a messenger from the President of the United States and chucked into the very midst of this group of "grave and reverend seigniors" the sad social error of the vicious, socialistic foundling of State-Medicine-for-the-U. S., which malfeasance, of course, was the thumb-in-the-soup for the nation at large as well as for the convention.

But it takes a lot to discourage a recognized ethical M. D. In spite of the Washington unpleasantness, it was a grand old meeting. It was in many ways a regular old-fashioned camp meeting sort of a session, for there was enthusiasm everywhre! Enthusiasm for the advances made in science during the past year and enthusiasm over the record results American doctors under the present American plan are getting in the battle against sickness, disease and the sequelae of casualties. The growing menace and devastation of motor traffic accident—an ever increasing element in the "unpaid" accounts of doctors and hospitals as well as in the mutilation of human beings, of homes and generally of the economic structure—have led medical men the country over to take a hand in the efforts towards restriction of accident, and remoulding of traffic rules and legislation. This feature was one of the most attractive discussed at the session, for a logical method of combat appeared to be in process of formulation.

The house of delegates considered and adopted many and far-reaching resolutions. Several of the more important are as follows:

Approved the campaign against syphilis.

Stressed the value of preventive medicine.

Provided for the creation of a Council on Industrial Health.

Defined "free choice of physician" as applied to contract practice and so amended the principles of medical ethics.

Provided that appeals to the Judicial Council shall be perfected within six months.

Defined hospital care under group hospitalization contracts as to consist of room, bed, board, routine nursing care and routine drugs only, excluding all medical care.

Called attention to the advantages in not overcrowding hospitals for mental diseases.

Provided that the staffs of hospitals approved for intern training shall be members of their county medical societies.

Urged the formation of a national department of health under one head, in which would be consolidated all the health activities of the government.

Adopted resolution condemning the indiscriminate sale of the barbiturates.

Passed a resolution to provide for the selection of a meeting place three years beyond the time for the meeting.

Recommended that all county societies cooperate with rural organizations in providing good medical service to their respective communities.

Recommended that the A. M. A. establish a new Council on Industrial Health to consider the ever increasing phases of occupational diseases.

The report of the Committee on Contraception, or Birth Control, was adopted. This report placed the responsibility for the examination of products used in contraception upon the various councils. Recognizing the necessity for teaching the scientific aspects of both fertility and sterility, it further made the recommendation that physicians generally inform themselves as to their legal rights and responsibilities in re the prevention of conception and added the suggestion that all such practice be done in regularly licensed clinics and *under medical control.*

THE NEW YORK RESOLUTION

Samuel J. Kopetsky presented the New York State resolution that was highly socialistic and revolutionary. The resolution was so drastic in nature that many members of the house of delegates were very much perturbed until the resolution was thoroughly emasculated, being finally disposed of in a manner satisfactory to all members of the house of delegates. The resolution embodied nearly all the economic problems confronting the medical profession today. The resolution went the full route in its recommendations for government subsidy.

The resolution stressed that the government is directly concerned with the health of all its citizens and that a national public health policy should be formulated immediately by the American Medical Association. Specifically the resolution proposed: (1) extension of public health services, federal, state and local; (2) provision for "adequate medical care for the medical indigent, the cost to be met from public funds"; (3) public funds for the support of medical education and medical investigation and research; (4) public funds for hospitals engaged in the care of the indigent sick; (5) "functional consolidation of all federal health and medical activities under a separate department."

The Reference Committee of the House of Delegates to which this resolution was referred reported as follows:

That, WHEREAS, the medical profession had always been willing to give its services to the indigent, it recognizes that there is a group of citizens not indigent and yet not competent financially to meet unusual medical costs and that the profession is willing to consider with other agencies ways and means of providing service and laboratory facilities for those not able to meet the full cost, but that the problem is local and state and not federal. The willingness of the profession to adjust its services is not in any sense of the word to be construed as an endorsement of compulsory or voluntary health insurance as a means of meeting the situation. The facilities of the American Medical Association are placed at the disposal of the government or any qualified agency in an effort to work out a solution of difficulties.

SENATOR LEWIS' THREAT

Thursday, June 10, Senator Lewis appeared before the House of Delegates and offered the following warning (ILLINOIS MEDICAL JOURNAL, August, 1937):

That an amendment to the Social Security Act is going to pass the present Congress with adequate provision for the medical care of those who cannot afford to pay for it. He said that the President desired the medical profession's advice in formulating a federal medical program. He then made some rather startling statements: "The question for you doctors is not whether you like it or whether you don't. The question for you is what is to be done about it?" A little later he said: "I am compelled to tell you that Government is on its way of saying to you, 'Hold up here, Mr. Doctor. We are not asking you to do anything about a *patient*. . . . It is your creation. We recognize an instrument called *citizen* who is essential to the welfare of the Government'." And to those who would say "This is an invasion, it ought not to be adopted," Mr. Lewis replied, "It is the policy that seems to possess all mankind in his advances all over the world." The Senator believed the issue no longer escapable. Senator Lewis warned that there were even more drastic points of view in Washington, stating that there are those "who are shortly going to demand of you that there be a system of examinations and applications by the Federal Government upon every doctor in America to prove his right to be admitted under the federal law in addition to that which he is now enjoying under his local laws."

The Committee on Reapportionment in making their report, stated that the maximum membership of the House of Delegates according to the by-laws is 175. In order that this number shall not be increased, they recommended one delegate from state societies for each 825 members, or major fraction thereof. This would not increase the delegates from any society except from the New York State Society, which has made a large increase in membership the past year. Several states will lose one delegate. The Illinois delegation will not be affected. The recommendation of the committee was approved.

THE PRESIDENT'S ADDRESS

In his talk to the house, the President, Dr. Heyd, stressed the major economic problems of the profession today. He discussed the increasing amount of free medical service being given each year in clinics, hospitals and infirmaries,

and stated that greater care should be taken in admitting these people for free service, so as to be sure that they were really entitled to such service. He approved of a plan to assure all people adequate medical care at a cost they can afford to pay. He discussed "adequate service," stating that much unnecessary work is being done, and that complete laboratory and X-ray services are not necessary in many cases now receiving them. He referred to a recent law in British Columbia which established a system of medical care at the expense of taxpayers; the 632 physicians in this territory voted on the proposition and since 613 were opposed to the plan, the Provincial Government promptly dropped the matter.

And here is something as fraternal as it was highly needed—a resolution was passed recommending the development of a distinguished service medal with citation to be presented each year to a physician who has rendered such service for the advancement of the art and science of medicine. Other new resolutions included recommending cooperation in securing drivers' licenses in various states so as to aid in the prevention of fatalities from motor accidents; encouragement of investigation of teaching of osteopathy by an unbiased, nonpartisan source; to the Social Security Board that examinations for blindness be carried out only by doctors of medicine, competent in diagnosis and treatment of diseases of the eye; encouragement in the use of motion pictures in public and in medical education and for reviews and censorship of films used for advertising promotion; to the Council on Medical Education and Hospitals for more extended inspection of hospitals.

The General Scientific Meetings commanded tremendous audiences, as did the motion picture clinic on syphilis. More than 300 papers were read in the scientific sessions. The symposiums on neuropsychiatry, papers on the use of sulfanilamide, and meetings of many of the sections attracted capacity audiences.

As in the Illinois meetings, the Scientific Exhibit has come to represent one of the most noteworthy of many extraordinary features of the annual session of the American Medical Association. A great many physicians spend their entire time during the week visiting these exhibits. The collections in this year's session were beyond any displays ever made in scientific value, appearance, attendance, quantity, arrangement and in every other detail.

The Technical Exposition merited the interest given to the Scientific Exposition, and what is more to the point—*got it!*

CAREFUL READINGS OF 1937 PROCEEDINGS OF A. M. A. HOUSE OF DELEGATES IS URGED UPON EVERY PHYSICIAN

Report of the proceedings of the convention of the American Medical Association for 1937 was published in June 12 and subsequent issues of Journal of the American Medical Association.

Careful reading of this well abridged epitome of what went on at Atlantic City is urged upon every physician in Illinois. It will be noted that at this convention as never before the question of the regimentation of the medical profession and its practitioners was not only the skeleton at the feast but a lusty beast seeking ravenously to devour all that is seemly in the theory and practice of the healing sciences.

The lay press reported generously upon the statements of Senator James Hamilton Lewis.

Unfortunately the amount of space given to the Senator did not hold the mirror up to his actual attitude towards that branch of communistic warfare against democracy that is expressed by the attempts to socialize medicine,

Once again let every doctor in Illinois be urged to spread the word of warning throughout the Union. Our nation stands at the stake, with the firebrands stacked ready to ignite by the insane impulses of socialistic scatterbrains. There is no room in the United States for another Russian bolshevistic imperialism, for that is the state to which communism leads inevitably.

Let the trend to socialize medicine be shifted to the socialization of the packing and clothing and other intustries and watch the change that will come over our public spirited men. At present the slogan of the destroyers is, "Medicine first; everything else next." It behooves every patriot and every American to beware of misguided temporizing with communism.

In addition to reading the Proceedings of the A. M. A. House of Delegates, it would be well to take down the old school books, riffle over the leaves of the old histories and re-read the immortal Patrick Henry. There was a man who

had ideas, the right ideas, the kind of ideas that helped to build a nation, not to wreck a world.

POLIOMYELITIS INCREASES SHARPLY

According to State Department of Public Health, Springfield, Ill.

Infantile paralysis, with 54 new cases reported last week, is now considerably more prevalent than at this date in any previous year since 1917, and the outlook is that the upward trend of incidence will continue for three or four weeks. Since mid-July the course of prevalence has run exactly true to form but on a higher level than usual. This fact, together with the history of poliomyelitis in Illinois, suggests that the peak of the current epidemic wave may be anticipated about the middle or toward the end of September.

Early diagnosis and early treatment under the direction of a competent physician are cardinal requirements for the best interests of the patients. No practicable method of prevention that may be recommended for general employment has been developed. Use of convalescents' serum, available free from the State Department of Public Health, in the treatment of patients early after the onset of illness is recommended. Experience in Illinois last year indicates that serum treatment when given soon enough is beneficial, strikingly so in not a few cases.

After the onset of paralysis, good orthopedic care is essential to optimal recovery. District health superintendents of the State Department of Public Health and physicians on the staff of the division for handicapped children of the State Department of Public Welfare have had special training in the diagnosis and methods of treating patients with poliomyelitis. Their services as consultants are available to practicing physicians.

Symptoms characteristic of poliomyelitis in the early stages of the disease include fever, rigidity of neck, pain on bending the head forward, rigidity of back, tremors of arms and legs, muscle tenderness and altered reflexes. Reflexes of biceps, triceps, knee and ankle jerks may be exaggerated or depressed.

Cases have been reported from all parts of the State although incidence has been more concentrated in Cook County and vicinity than elsewhere. The accumulated total of cases reported to date is 193 for this year against 89 in 1936. The distribution of cases reported last week was Cook County, 35; JoDaviess, 3; two each from DuPage, Kane, LaSalle and McLean; and one each from Jefferson, Macon, Marshall, St. Clair, Shelby, Stephenson, Will, Winnebago.

INTERNATIONAL ASSEMBLY

The International Assembly of the Inter-State Postgraduate Medical Association of North America, under the presidency of Dr. John F. Erdmann of New York, will be held in the beautiful new public auditorium of St. Louis, Missouri, October 18, 19, 20, 21 and 22, with preassembly clinics on Saturday, October 16 and post-assembly clinics, Saturday, October 23 in the hospitals of St. Louis.

The aim of the program committee, with Dr. George Crile as chairman, is to provide for the medical profession of North America an intensive postgraduate course covering the various branches of medical science. The program has been carefully arranged to meet the demands of the general practitioner, as well as the specialist. Extreme care has been given in the selection of the contributors and the subjects of their contributions.

The St. Louis Medical Society will be host to the Assembly and has arranged an excellent list of committees who will function throughout the Assembly.

A tentative list of the distinguished teachers and clinicians who will take part on the program may be found on page 24 of the advertising section of this Journal.

A most hearty invitation is extended to all members ofthe profession who are in good standing in their State or Provincial Societies to be present. A registration fee of 5.00 will admit each member to all the scientific and clinical sessions.

For further information, write Dr. W. B. Peck, Managing-Director, Freeport, Illinois.

WE DOUBT IT

In the Twentieth Cenutry, war will be dead, the scaffold will be dead, hatred will be dead, frontier boundaries will be dead, dogmas will be dead; man will live. He will possess something higher than all these . . . a great country, the whole earth, and a great hope, the whole heaven.—Victor Hugo.

MEDICAL ECONOMICS

H. M. Camp, M. D.
E. P. Coleman, M. D.
John R. Neal, M. D.
I. H. Neece, M. D.
W. M. Hartman, M. D.

Edited by the Committee on Medical Economics of the Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

R. K. Packard, M. D.
Ralph Peairs, M. D.
C. B. Reed, M. D.
C. S. Skaggs, M. D.
C. E. Wilkinson, M. D.

Address all letters and communications to the Chairman.

Any doubt as to the reliability of the promise made by Senator Lewis in his speech before the House of Delegates at the last annual meeting of the American Medical Association at Atlantic City last June, were completely dispelled last month when he introduced a resolution before the Senate beginning "To provide medical aid for the needy and the stricken with illness who are unable because of poverty to provide treatment and hospitalization; also to establish medical practitioners as civil officers of the National Government." Probably the majority of the medical profession have read this bill, for it has been discussed in every medical Journal printed since that time. If you have not, turn to page 436 of the J.A.M.A. of August 6 and read carefully. Surely the trend of the national government is definitely shown as far as the medical profession is concerned. The bill states that the doctor must answer all calls from the needy and render necessary care, under penalty of a fine of $1,000 or three months in jail or both. After the service has been rendered he can send a bill to the proper governmental agency who can pay it if all the rules and regulations have been conformed to. It is implied that the bill must be revised if it does not conform to all the rules and regulations agreed on by a governmental agency. Hospitals must admit all patients brought to them. Of course, the bill did not pass. It was not expected that it would. It was merely a trial balloon sent up inflated with hot air, generated by an expert. But you may be sure that the reactions of the medical profession and the American people will be and are being carefully watched by the alert boys down in Washington, who are making the plans and pushing the same with the aid of men like the Senator from Illinois. It is difficult to believe that the Senator believes in any such law. He is too old, too wise to think that you can accomplish real good to the people of this country by any such high handed methods. We prefer to believe that he did not write the law, but merely acted as agent in geting it before the Senate. Just who wrote it is of little moment. The important thing is why it was written and what is actually behind the bill. It does not take much thought to realize that this is merely another step in the process of REGIMENTATION, now being so carefully planned and carried on in Washington and at the same time so skillfully concealed by fine sounding phrases and soft words, that the rank and file of the American people are being lulled into a sense of false security, from which they will be awakened as rudely as the people of Europe have been the past few years. Unsuspecting as the medical profession is, it cannot fail to see that when this bill is passed, if it ever is, the days of the practice of medicine as a private business are over.

Meanwhile, with Congress adjourned and the quarreling members back home fixing their political fences and talking to their constituents, it is a fine time for the medical profession to do some real missionary work with both the public and the politicians. Even though there may be a special session of the Congress called for November to pass some of the legislation which fell by the wayside in the personal fuss which entertained the public and made enemies of old friends in the closing days of the last Congress, there is time for something to be done. If by chance, the time is extended to the first of the year, so much the better. But there is much to be done if the medical profession is to successfully oppose this bill. The officers of the State Society cannot do all of it, although they should and probably will give unsparingly of their time. The rank and file of the medical profession must help and to be able to help, they must read up on the bill and know why it is unfair and will not work. Then and only then, will they be in position to tell the public and the Senators and Representatives why it is not a good thing for the people of the United States. What better

point can we make than to point with pride at the mortality and morbidity rate of the United States in comparison with any country of Europe and particularly those where they have been enduring State Medicine for from twenty to forty years. Just sitting at home and condemning the Federal Government will not accomplish a single thing. Neither will a defeatist attitude that nothing can be done about it, for reform of a similar nature is in the air and opposition will be of no avail. Surely, the United States is not obliged to make all the same mistakes of Europe. It is our job to point out some of these mistakes and show how much superior our method of practicing medicine is over that of Europe.

The lay press has a kindly feeling to the medical profession at this time. We can make use of this feeling if we are wise and do not impose on them. Every medical Journal coming out has articles and editorials on the subject, in every one of which the plan has been condemned. Please read them and do your bit in understanding the problem and explaining it to the general public.

Probably all of this problem will be discussed at the meeting of the Council on August 30 and there may be some report of the action taken, by either the Secretary or the Editor of the Illinois Medical Journal. The Medical Economics Committee will hold a meeting on the 29th, and we hope to have some definite report to make next month.

An article by the President of the Illinois Medical Society, Dr. R. K. Packard, is included in this month's column. Please read it, for Dr. Packard, in addition to being a deep thinker, has the ability to express his thoughts to others in a way that is exceptional. He has given considerable time to this article and has some good advice for all of us in the medical profession and for the good of the medical profession itself.

E. S. Hamilton, M. D.,
Cairman Committee on Medical Economics.

"THE WAKE" ALWAYS CARRIED HELP! HELP! IN ITS ARTICLES

The Officers of the State Society desire your help, your suggestions, your views on problems dealing with the physician's role in the practice of medicine and the role of the public as recipients of medical care. Constructive criticism is always enjoyed, for out of that comes real progress. Among the seven thousand physicians in this state, all have given thought to their own problems in their community, and perhaps they have formulated what they consider a remedy for those problems that affect them and their patients.

I frequently hear doctors making suggestions as to what they think ought to be done. Sometimes they let it pass with the remark that the Society is not doing what it ought to for the doctors and the public. When you ask them to submit in some definite form their recommendations for the good of the profession and the public, they sometimes reply, that's your business, or better put, the business of the Officers of the Society. The Officers appreciate their responsibility and I am sure endeavor to meet, as well as they know how, the many problems now confronting them, but your Officers are also mindful of the fact that they have many outstanding men in all of their communities that have excellent minds that could be of great assistance to the Officers if they would share more fully their responsibilities.

If ever, at the present time, we need a united front, not so much just for our own protection, but for the protection of the people who receive medical care. Aside from the whole realm of medical practice we need a united front in this rapidly changing State. Co-ordination must come into our national life; bureaucracy cannot solve our intricate problems. It cannot solve the problems of the doctor, nor of the small business man, nor of the management of large industry.

The writer has repeatedly said, "that we have problems in the practice of medicine." The small individual has problems in his own business and the large industries that depend on management have multiplied problems.

Employees have their problems, multiple in number, and their sensible and profitable solution must come from within and not from without.

The practice of medicine occupies a position much clearer in concept because the rendering of good medical service has never turned backward. Its march has always, and particularly of late, been to an increasing efficiency. Why, with this record of achievement, any one could

ask for a radical change seems unanswerable. It seems particularly unanswerable when experiments over a period of years in other countries have failed.

The medical economics column of this JOURNAL was established so that the doctors of this State might express themselves regarding our problems. There should be a larger number of contributions to this column, and particularly constructive articles along the lines of rendering better medical service.

We should constantly fight trends and legislation that will ultimately be injurious to public and private welfare, and our strongest weapon of attack will always be a constantly increasing valuable service to the public. Increasing value of our service to the public may come from several sources.

1. Co-operation with the health authorities in the prevention of the spread of disease.

2. Co-operation with the hospitals for better post graduate courses and better intern training.

3. Co-operation with your county medical society both from the standpoint of education and economics.

4. Co-operation with the educational committee of the State Society to fill speaking engagements for both scientific and lay educational programs.

5. Co-operation with your legislative committee to the end that laws do not pass that are inimical to public welfare.

6. Co-operation with your colleagues for a freer consultation in undiagnosed and complicated cases.

7. The use of all the available knowledge in diagnosis and treatment of diseases in your private practice.

8. Co-operation in the decrease of medical costs by not doing useless laboratory and x-ray work just because the public have been somewhat educated to "Getting the Works."

9. Co-operation with plans for experimental purposes in attempting to find better medical care for the indigent and very low income groups.

10. Co-operation between your library and yourself.

Dr. R. K. Packard.

Correspondence

EXAMINATION FOR HEALTH OFFICERS OF CHAMPAIGN-URBANA AND EAST ST. LOUIS HEALTH DISTRICTS

Notice is hereby given that an examination will be held at Springfield, Illinois for the purpose of selecting a Health Officer for the Champaign-Urbana Health District and the East St. Louis Health District.

Application blanks may be secured by writing to the Director, Illinois Department of Health, Springfield, Illinois. All applications must be received by September 15, 1937. Acceptable applicants will be informed by mail as to the specific date of the examination.

The determination of qualification for the positions will be based on the standards as appearing in Appendix A, Supplement No. 126, The Public Health Program under title VI of the Social Security Act as published by the U. S. Government printing office, Washington, 1937.

Frank J Jirka, M. D.,
Director, Illinois Department of Health.

TELEGRAM OF PROTEST SENT SENATOR JAMES HAMILTON LEWIS

The following telegram was sent to Senator James Hamilton Lewis in opposition to the proposal that he introduced in the United States Senate, which would result in the regimentation of physicians throughout the United States and penalize any doctor who refused to give aid to an indigent person by a fine not to exceed $1,000 and imprisonment of not more than three months:

"Senator James Hamilton Lewis
Springfield Illinois July 31 1937
Washington D C
A canvass of opinion shows Illinois medical profession strongly opposed your proposal of federalizing physicians Stop The millions misled by Townsend pension scheme and Huey Long share wealth Will O Wisp illustrate the confusion and disappointment that would result among people it seeks to help Stop Impoverished now get as good medical care as would be practical under any scheme and middle classes would not be covered Stop Abuse of system would be monumental without burdensome machinery of

enforcement and that would create expense organization susceptible of inimical political control Stop Good doctors would be overwhelmed under compulsory penalty provision while voluntary acceptance of patients by doctors would relegate treatment of beneficiaries to lowest rank physicians Stop Human nature factor makes impossible satisfactory functioning of a nationalized medical care system Stop Federal treasury is regarded as everlasting fountain of wealth which can be tapped without reservation Stop This attitude eliminates economical administration Stop It is amazing how many complaints a man will get when medical service is free Stop Your proposal is contrary to the best public interest, would greatly reduce quality of medical care would violate principle of home rule, become a gigantic financial burden and would result in no public advantage Stop Earnestly urge reconsideration of this proposal

J R Neal M D Chairman
Legislative Committee"

In addition to Senator Lewis, this information was sent to Senator Dieterich of Illinois and to each of the Congressmen from this State; also to the officers of the Illinois State Medical Society, the officers of each County Society in the State of Illinois, and to many physicians throughout the State, and in addition to each President and Secretary of the State Societies throughout the nation and to the officers of the American Medical Association.

EDUCATIONAL COMMITTEE

Report for June, July and August, 1937

RADIO:

Forty-seven programs were given during the summer. Dozens of talks given in previous broadcasts have been rewritten into dialogues or interviews between the announcers of the stations and doctors. These have been very popular and will be continued from time to time.

The Committee is planning to get out a weekly or monthly sheet showing the broadcasts to be given over a period. These announcements will be sent to presidents of various lay organizations and others who may be interested in giving publicity to this type of health education material.

POSTGRADUATE COURSES IN OBSTETRICS AND PEDIATRICS:

Many conferences and meetings have been held to make plans for the postgraduate courses to be offered in Illinois. Mistakes of last spring are being corrected and it is felt that the courses to be offered this fall are outstanding. Specialists in the fields of obstetrics and pediatrics have been selected representing all sections of the state to give these courses. New subjects have been selected. Excellent slides have been made. It is expected that many counties will wish to take advantage of the material. Concrete help will be given secretaries in promoting attendance and publicity through the office of the Educational Committee.

SCIENTIFIC SERVICE COMMITTEE.

Speakers were scheduled for the following summer meetings:

Aurora Medical Society—Dr. Frank P. Hammond, "Medical Ethics."

Effingham County—Dr. I. H. Neece, "Venereal Disease Campaign."

Marion County—Dr. Ben Morgan, "General and Local Anesthetics."

Marion County—D. C. Wray (Attorney), "Legal Aspects of Medicine."

Monroe County—Dr. J. J. Donahue, "Pediatrics."

Whiteside County—Dr. R. K. Packard, "The Practice of Medicine, Then and Now."

Hancock County—Dr. S. M. Feinberg, "Summer Allergy."

A new list of speakers and subjects for county medical society programs has been compiled. The subjects cover all fields of medicine and the speakers represent all sections of the state. This booklet will soon be released to all officers of county societies and should offer some excellent suggestions for scientific programs.

DISPLAY WINDOWS:

The window at Marshall Field & Co. has carried exhibits on:

"Spring Tonics."

"History of Medicine in Chicago."

"Hay Fever."

The windows have been excellent and an effort has been made to have them in keeping with topics of current interest.

PRESS SERVICE:

Editorial style articles have been written as follows:

Why Organized Medicine Opposes Insurance for Ailments.
Make It Safe and Sane.
Summers Past and Present.
Typhoid Fever.
Preparation for Marriage.
Shall He Study Medicine?
Will Your Child Be Ready?
Prevention of Diabetes.
Hay Fever.
The Human Body and Its Protection.
Your Child Won't Eat?
A Change in Outlook.
Dangers in Drugs.
The Gall Bladder.
The Blood Count.
What Poison Are You Taking?
How Tired Are You?

1,105 copies of the above articles went to Illinois newspapers.

1,062 articles to newspapers not included in the above.

1,884 health articles were sent to downstate libraries, home advisers, health chairmen of clubs, WPA workers.

576 health articles to Chicago libraries.

60 articles released in the monthly press service.

231 articles to Chicago newspapers.

Special material on the history of medicine in Kane County was secured for the Aurora Beacon News in connection with their centennial edition.

Special Publicity for County Meetings:

33 newspaper releases for Whiteside County.

77 newspaper releases for Hancock County.

SERVICE TO COUNTY MEDICAL SOCIETIES:

214 notices sent out for Henry County.

126 notices for Whiteside County.

63 notices for Randolph County.

94 notices for Effingham County.

SPEAKERS' BUREAU:

Few clubs hold meetings during the summer. The few requests which came in from men's service organizations were for talks on the problems of socialized medicine.

Many requests have come in for speakers during the coming months and these are being taken care of. The Committee is hoping that it will be possible for clubs to pay transportation expenses of all speakers. In that event, it hopes to offer a small honorarium to doctors who give their time for this type of educational work.

The Committee is planning to secure suitable material for distribution at lay meetings addressed by physicians. This material will be secured from the American Medical Association, the State Department of Public Health and ohter recognized sources.

Respectfully submitted,

JEAN MCARTHUR,
Secretary.

QUINCY (ILLINOIS) MEETING OF MISSISSIPPI VALLEY MEDICAL SOCIETY

The third annual meeting of the Mississippi Valley Medical Society will be held at Quincy, Illinois, Sept. 29, 30, Oct. 1. A most ambitious program has been arranged consisting of 48 teachers and clinicians who will give over 60 lectures and demonstrations in the three day intensive session. The first day will be an All St. Louis program with 18 clinicians on the program; on the second day there will be groups from Rochester and Chicago; on the third day the speakers will come from a wide territory. An innovation this year will be two short courses of instruction (four hours each)—one on "Surgery of the Neck" by Dr. Lindon Seed, Associate Professor of Surgery, University of Illinois College of Medicine and another "Interpretation of Clinical Laboratory Findings" by Dr. M. Pinson Neal, Prof. of Pathology, University of Missouri School of Medicine. At the annual banquet to be held on Sept. 30th, the speakers will consist of Dr. R. K. Packard, President, Illinois State Medical Society; Dr. D. S. Conley, President, Missouri State Medical Society and Dean of the University of Missouri School of Medicine; Dr. E. M. Myers, President of the Iowa State Medical Society; and Rev. A. M. Schwitalla, Ph.D., Dean of St. Louis University School of Medicine. There will be large technical and scientific exhibits. A complimentary stag supper will be given on Sept. 29. The meeting is open to all ethical Physicians. A detailed program may be obtained from Dr. Harold Swanberg, Secretary, 209-224 W.C.U. Building, Quincy, Illinois.

45TH ANNUAL CONVENTION

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES

Ambassador Hotel, Los Angeles

First General Meeting—*Thursday, October* 14.

Opening Session: 10:15 A. M.

Invocation.

Address of Welcome.

Response.

President's address, Rear Adm. P. S. Rossiter, Surgeon General of the Navy.

FIRST SCIENTIFIC MEETING

Thursday, October 14, 1:30 *P. M.*

1. Capt. George A. Cottle, M. C., U. S. Navy, "Fleet Medicine." Discussion to be opened by Capt. Lester L. Pratt, M. C., U. S. Navy.

2. Maj. J. S. Chase, M. C., U. S. Army Ret., "Eyes in Aviation."

3. Lt. Col. I. H. Jones, Med. Res. U. S. Army, "Ears in Aviation." (Motion picture showing research).

4. Col. Charles Decker, U. S. Army (D. E. O.) Ret., "The Training of Medical Officers in a Major War Emergency."

SECOND SCIENTIFIC MEETING

Friday, October 15, 10:00 *A. M.*

1. Capt. Leroy Lowman, Med. Res. U. S. Army. (Advisory Committee Warm Springs Foundation.) "Physiotherapy in the Next War." (Slides.) Discussion to be opened by 1st Lt. Harold Dewey Barnard, Med. Res. U. S. Army.

2. Lt. Comdr. Albert G. Bower, MC-V (S) U. S. N. R., "Modern Typhoid Treatment." Discussion to be opened by Roy Fisk, M. D.

3. Capt. Lucius Johnson, M. C., U. S. Navy, "Hospital Ships in the World War: Lessons to Be Learned from Them." (Slides) Discussion to be opened by Capt. George Cottle, M. C., U. S. Navy.

4. Lt. Albert Wineland, MC-V (S) U. S. N. R., "Anesthesia in Shock." Discussion to be opened by Eldon Tice, M. D.

THIRD SCIENTIFIC MEETING

Friday, October 15, 1:30 *P. M.*

1. Lt. A. R. Behnke, M. C., U. S. Navy. "Submarine Medicine." (Slides.)

2. Chairman's address, Lt. Comdr. Howard L. Updegraff MC-V (S) U. S. N. R., "Emergency Plastic Surgery." (Motion picture.)

3. Comdr. C. V. Rault, D. C., U. S. Navy, "The Blood Sedimentation Rate in Dental Infections." (Slides.)

4. Comdr. Albert Soiland, MC-V (S) U. S. N. R. Ret., "The Medical Specialists Units, U. S. N. R."

SECOND GENERAL MEETING

Saturday, October 16

Opening session, 10:00 A. M.

Guest Speaker, Col. Howard Naffziger, Med. Res. U. S. Army, "Surgical Treatment of Low Back Pain." Slides.)

FIFTEENTH ANNUAL MEETING OF THE ACADEMY OF PHYSICAL MEDICINE

Philadelphia, October 19, 20, 21

The Fifteenth Annual Meeting of the Academy of Physical Medicine will be held at the Hotel Walton, Philadelphia, October 19, 20, 21, 1937.

The Academy, which is international in scope, will present a scientific program based on reports of the most recent research and practice of the various specialties. In addition to the lectures, demonstration clinics will be held at the Hospitals of the University of Pennsylvania, Jefferson Medical College, and Temple University.

A copy of the program may be had by addressing: William D. McFee, M. D., Chairman, 41 Bay State Road, Boston, Mass.

THE FOURTH INTERNATIONAL LEPROSY CONFERENCE

Arrangements are being made to hold the fourth International Leprosy Conference in Cairo beginning March 21, 1938. This conference is being organized by the International Leprosy Association, and this will be the first International Conference to be arranged by this association since its inauguration in 1931. Three previous conferences of this nature have been held—at Berlin in 1897, at Bergen in 1909, and at Strassbourg in 1923.

The Egyptian Government is inviting all countries concerned to send official delegates. In addition to these, doctors and others interested in the subject are invited to be present. Full information can be obtained from the Secretary of the International Leprosy Association, 131 Baker Street, London, W. 1.

INTERNATIONAL MEDICAL ASSEMBLY INTER-STATE POSTGRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA

October 18, 19, 20, 21, 22, 1937

Pre-assembly Clinics, October 16

Post-assembly Clinics, October 23

St. Louis Hospitals

ST. LOUIS, MISSOURI

Monday, October 18

8:00 A. M.

Diagnostic Clinic: "Cosmetic Results in the Treatment of Cancerous Skin Lesions." Dr. Joseph Eller, Professor of Clinical Dermatology and Syphilology, New York Postgraduate Medical School, Columbia University, New York, N. Y.

Diagnostic Clinic: "Hypertensive Heart Disease, Manifestations, Diagnosis, Treatment." Dr. Fred M. Smith, Professor of Theory and Practice of Medicine, State University of Iowa College of Medicine, Iowa City, Iowa.

Diagnostic Clinic: "Deficiency Diseases." Dr. Russell L. Haden, Chief of Medical Division, Cleveland Clinic, Cleveland, Ohio.

Intermission to Review Exhibits

Diagnostic Clinic: "The Symptoms and Treatment of Injuries of the Spinal Cord." Dr. Loyal Davis, Professor of Surgery, Northwestern University School of Medicine, Chicago, Illinois.

Diagnostic Clinic: "Types of Obesity and Their Treatment." Dr. Reginald Fitz, Associate Professor of Medicine, Boston, University Medical School, Boston, Mass.

Noon Intermission

1:00 P. M.

Diagnostic Clinic: "Surgical Treatment of Peptic Ulcer." Dr. Donald C. Balfour, Professor of Surgery, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minn.

Address: "Ulcerative Colitis and Its Surgical Management." Dr. Richard B. Cattell, Lahey Clinic, Boston, Mass.

Address: "The Roentgent Treatment of Infections." Dr. Frederick M. Hodges, Professor of Clinical Radiology, Medical College of Virginia, Richmond, Virginia.

Intermission to Review Exhibits

Address: "Meningitis Secondary to Disease of the Bones of the Skull." Dr. Wallis P. Eagleton, Newark, New Jersey.

Address: "The Treatment of Urinary Infections in Infants and Children." Dr. John R. Caulk, Professor of Clinical Genito-Urinary Surgery, Washington University School of Medicine, St. Louis, Mo.

Address: "Prenatal Care." Dr. Otto H. Schwarz, Professor of Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Mo.

Address: "Granulomatous Lesions of the Intestines." Dr. Claude F. Dixon, Assistant Professor of Surgery, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minn.

Dinner Intermission

7:00 P. M.

Address: "Recent Advances in the Field of Abdominal Surgery." Mr. W. Hugh Cowie Romanis, F. R. C. S., Surgeon to St. Thomas Hospital, London, England.

Address: "The Influence of Drugs upon the Physiology of the Failing Heart." Dr. Maurice B. Visscher, Professor of Physiology and Head of the Department, University of Minnesota Medical School, Minneapolis, Minn.

Address: "The Mechanism and Treatment of Congestive Heart Failure." Dr. Tinsley R. Harrison, Associate Professor of Medicine, Vanderbilt University School of Medicine, Nashville, Tenn.

Address: "The Diagnostic Significance of Abdominal Pain." Dr. Frederick J. Kalteyer, Clinical Professor

of Medicine, Jefferson Medical College, Philadelphia, Pa.

Address: "Carcinoma of the Stomach." Dr. Waltman Walters, Professor of Surgery, University of Minnesota Graduate School of Medicine, Mayo Clinic, Rochester, Minn.

Address: "Chronic Prostatitis." Dr. Cyrus E. Burford, Professor of Urology, St. Louis University School of Medicine, St. Louis, Mo.

Tuesday, October 19

8:00 A. M.

Diagnostic Clinic: "The Effect of General Infection on the Nervous System of Children." Dr. Bronson Crothers, Assistant Professor of Pediatrics, Harvard University Medical School, Boston, Mass.

Diagnostic Clinic: "Spastic Paralyses." Dr. Alan deForest Smith, Clinical Professor of Orthopedic Surgery, Columbia University College of Physicians and Surgeons, New York, N. Y.

Diagnostic Clinic: (Subject to be supplied.) Dr. Dean D. Lewis, Professor of Surgery, Johns Hopkins University School of Medicine, Baltimore, Md.

Intermission to Review Exhibits

Diagnostic Clinic: "Pitfalls in the Diagnosis of Acute Abdominal Conditions." Dr. Alton Ochsner, Professor of Surgery, Tulane University of Louisiana School of Medicine, New Orleans, La.

Diagnostic Clinic: "Various Types of Edema and Their Treatment." Dr. David P. Barr, Busch Professor of Medicine, Washington University School of Medicine, St. Louis, Mo.

Noon Intermission

1:00 P. M.

Diagnostic Clinic: "The Management of Compound Fractures of the Extremities." Dr. John J. Moorhead, Professor of Clinical Surgery, New York Postgraduate Medical School, Columbia University, New York, N. Y.

Address: "Migraine." Dr. Thomas Cecil Hunt, St. Mary's Hospital, London, England.

Address: "Cicatrizing Enteritis—A Neglected Clinical Entity." Dr. Elliott C. Cutler, Moseley Professor of Surgery, Harvard University Medical School, Boston, Mass.

Intermission to Review Exhibits

Address: "The Problem of Ocular Tuberculosis." The Joseph Schneider Foundation Presentation. Dr. Alan C. Woods, Acting Professor of Ophthalmology, Johns Hopkins University School of Medicine, Baltimore, Md.

Address: "Combined Abdomino-perineal Resection for Carcinoma of the Rectum." Dr. Thomas B. Jones, Cleveland Clinic, Cleveland, Ohio.

Address: "Early Diagnosis and Treatment of Cancer of the Cervix." Dr. John R. Fraser, Professor of Obstetrics and Gynecology, McGill University Faculty of Medicine, Montreal, Canada.

Address: (Subject to be assigned.) Dr. Marion L. Klinefelter, St. Louis, Missouri.

Dinner Intermission

7:00 P. M.

Address: "Growth Disturbances of the Pelvis and Femur Resulting from Diseases of the Hip Joint." Dr. Dallas B. Phemister, Professor of Surgery, University of Illinois College of Medicine, Chicago, Illinois.

Address: "The Post Hoc Ergo Propter Hoc Fallacy in Medicine." Dr. Robert D. Rudolf, Professor Emeritus of Therapeutics, University of Toronto Faculty of Medicine, Toronto, Canada.

Address: "Allergy as Related to the Otolaryngologist." Dr. Harold G. Tobey, Boston, Massachusetts.

Address: "Newer Methods in the Medical Treatment of Peptic Ulcer." Dr. Horace W. Soper, St. Louis, Missouri.

Address: "Subdural Hematoma." Dr. Eric Oldberg, Professor of Neurology and Neurological Surgery, University of Illinois College of Medicine, Chicago, Ill.

Address: "Toxemias of Pregnancy." Dr. Nicholson J. Eastman, Professor of Obstetrics, Johns Hopkins University School of Medicine, Baltimore, Md.

Wednesday, October 20

8:00 A. M.

Diagnostic Clinic: "Hay Fever." Dr. J. Harvey Black, Professor of Preventive Medicine, Baylor University College of Medicine, Dallas, Texas.

Diagnostic Clinic: "Newer Methods of Vascular Surgery." Dr. Wayne Babcock, Professor of Surgery and Clinical Surgery, Temple University School of Medicine, Philadelphia, Pa.

Diagnostic Clinic: "Bronchiectasis and Certain Phases of Tuberculosis." Dr. Charles R. Austrian, Associate Professor of Medicine, Johns Hopkins University School of Medicine, Baltimore, Md.

Intermission to Review Exhibits

Diagnostic Clinic: "Dyspepsia, Organic Reflex and Functional." Dr. Walter C. Alvarez, Professor of Medicine, University of Minnesota, The Mayo Foundation, Rochester, Minn.

Diagnostic Clinc: "Syphilis of the Central Nervous System." Dr. Leon H. Cornwall, Associate Professor of Neurology, Columbia University College of Physicians and Surgeons, New York, N. Y.

Noon Intermission

1:00 P. M.

Diagnostic Clinic: "Abdominal Pain." Dr. Irvin Abell, Clinical Professor of Surgery, University of Louisville School of Medicine, Louisville, Ky.

Address: "Drugs in the Treatment of Heart Disease." Dr. Robert L. Levy, Professor of Clinical Medicine, Columbia University College of Physicians and Surgeons, New York, N. Y.

Address: "Diagnosis and Treatment of Brain Abscess." Dr. Walter E. Dandy, Adjunct Professor of Neurological Surgery, Johns Hopkins University School of Medicine, Baltimore, Md.

Intermission to Review Exhibits

Address: "X-ray Treatment of the Pituitary Gland." Dr. Merrill C. Sosman, Assistant Professor of Roent-

genology, Harvard University Medical School, Boston, Mass.

Address: "Water Balance in Surgical Patients with Special Reference to Pre- and Post-Operative Management." Dr. Frederick P. Coller, Professor of Surgery, University of Michigan Medical School, Ann Arbor, Mich.

Address: "Anxiety States in General Practice." Dr. William J. Kerr, Professor of Medicine, University of California Medical School, San Francisco, California.

Assembly Dinner

For members of the profession, their ladies and friends.

Informal

7:00 P. M.

Dr. John F. Erdmann, Master of Ceremonies.

Addresses by eminent members of the profession and other distinguished citizens of the world.

Thursday, October 21

8:00 A. M.

Diagnostic Clinic: "Cirrhosis of the Liver." Dr. Charles A. Elliott, Professor of Medicine, Northwestern University School of Medicine, Chicago, Ill.

Diagnostic Clinic: "Factors to be Considered in the Diagnosis of Diseases of the Genito-Urinary Tract." Dr. William E. Lower, Cleveland Clinic, Cleveland, Ohio.

Diagnostic Clinic: "Nephritis." Dr. Jonathan C. Meakins, Professor of Medicine, McGill University Faculty of Medicine, Montreal, Canada.

Intermission to Review Exhibits

Diagnostic Clinic: "Post-Operative Fistulae with Special Reference to the Gall-Bladder." Dr. John F. Erdmann, Attending Surgeon, New York Postgraduate Hospital and Medical School, Columbia University, New York, N. Y., President, Inter-State Post Graduate Medical Association.

Diagnostic Clinic: "The Relation of Diabetes to Arteriosclerosis." Dr. Elliott P. Joslin, Clinical Professor of Medicine, Harvard University Medical School, Boston, Mass.

Noon Intermission

1:00 P. M.

Address: "A New Approach to the Treatment of Peptic Ulcer." Mr. Wilson Hey, F. R. C. S., Surgeon, Manchester Royal Infirmary, Manchester, England.

Address: "The Adherent Posterior Duodenal Ulcer." Dr. J. William Hinton, Associate Professor of Clinical Surgery, New York Postgraduate Medical School, Columbia University, New York, N. Y.

Address: "The Prevention and Treatment of the Exanthemata." Dr. John A. Toomey, Associate Professor of Pediatrics, Western Reserve University School of Medicine, Cleveland, Ohio.

Intermission to Review Exhibits

Address: "Indication for Hysterectomy and Radium in Fibroid Tumors of the Uterus Based on One Thousand and Twenty-five Cases." Dr. William D. Haggard, Professor of Surgery, Vanderbilt University School of Medicine, Nashville, Tenn.

Address: "Endocarditis." Dr. Ralph A. Kinsella, Professor of Internal Medicine, St. Louis University School of Medicine, St. Louis, Mo.

Address: "Recent Advances in Hormone Therapy as Applied to Gynecological Problems." Dr. Emil Novak, Associate in Gynecology, Johns Hopkins University School of Medicine; Associate Professor of Obstetrics, University of Maryland School of Medicine, Baltimore, Md.

Dinner Intermission

7:00 P. M.

Address: "The Surgical Treatment of Diverticulitis." Dr. Fred W. Rankin, Lexington, Kentucky.

Address: "Diagnosis and Treatment of Displacements of the Uterus." Dr. William H. Vogt, Director of the Department of Gynecology and Obstetrics, St. Louis University School of Medicine, St. Louis, Mo.

Address: "The Relation of the Development of the Child to the Endocrine System." Dr. Charles R. Stockard, Professor of Anatomy, Cornell University Medical College, New York, N. Y.

Address: "Indications for Exploratory Laparotomy." Dr. William T. Coughlin, Professor of Surgery, St. Louis University School of Medicine, St. Louis, Mo.

Address: "Tumors of the Kidney." Dr. Herman L. Kretschmer, Clinical Professor of Surgery, Rush Medical College, University of Chicago, Chicago, Ill.

Friday, October 22

8:00 A. M.

Diagnostic Clinic: "Surgical Lesions of the Common and Hepatic Ducts." Dr. Frank H. Lahey, Director of Surgery, Lahey Clinic; Surgeon to the New England Baptist Hospital and the New England Deaconess Hospital, Boston, Mass.

Diagnostic Clinic: "The Diagnosis and Management of Cardiac Arrhythmias." Dr. Roy W. Scott, Professor of Clinical Medicine, Western Reserve University School of Medicine, Cleveland, Ohio.

Diagnostic Clinic: "Chest Surgery." Dr. Evarts A. Graham, Bixby Professor of Surgery, Washington University School of Medicine, St. Louis, Mo.

Intermission to Review Exhibits

Diagnostic Clinic: "The Medical Treatment of Arthritis." Dr. Cyrus C. Sturgis, Professor of Internal Medicine, University of Michigan Medical School, Ann Arbor, Mich.

Diagnostic Clinic: "Diagnosis and Management of Diseases of the Thyroid Gland." Dr. George Crile, Cleveland Clinic, Cleveland, Ohio.

Noon Intermission

1:00 P. M.

Address: "The Surgical Treatment of Arthritis." Dr. Philip D. Wilson, Clinical Professor of Orthopedic Surgery, Columbia University College of Physicians and Surgeons, New York, N. Y.

Address: "Diet of Infants." Dr. Charles Hendee Smith, Professor of Pediatrics, University and Bellevue Hospital Medical College, New York, N. Y.

Address: "The Relation of the Pituitary, Thyroid, Adrenals, Liver, and Pancreas to Hyperinsulinism and Spontaneous Hypoglycemia." Dr. Seale Harris, Pro-

fessor Emeritus of Medicine, University of Alabama School of Medicine, Birmingham, Ala.

Address: "Relief of Intractable Pains by Subarachnoid Alcohol Injections, Nerve Blocks, Root Sections, and Chorodotomy." Dr. W. McK. Craig, Professor of Neurosurgery, University of Minnesota Graduate School of Medicine, Mayo Foundation, Rochester, Minn. and Dr. Alfred W. Adson, Professor of Neurosurgery, University of Minnesota Graduate School of Medicine; Senior Neurosurgeon of Mayo Clinic, Rochester, Minn.

Intermission to Review Exhibits

Address: "Diagnosis and Treatment of Pneumonia." Dr. Russell L. Cecil, Professor of Internal Medicine, New York Polyclinic Medical School and Hospital, New York, N. Y.

Address: "The Significance of Hoarseness and Local Discomfort in Laryngeal Disease." Dr. Gabriel Tucker, Professor of Clinical Bronchoscopy and Esophagoscopy, University of Pennsylvania School of Medicine, and Professor of Bronchoscopy and Laryngeal Surgery, Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pa.

Address: "The Surgery of Hermaphroditism and Associated Adrenal Diseases." Dr. Hugh H. Young, Professor of Urology, Johns Hopkins University School of Medicine, Baltimore, Md.

Address: "The Menace of Post-Operative Adhesions." Dr. Fred W. Bailey, St. Louis, Missouri.

MEDICO-MILITARY INACTIVE DUTY TRAINING

1. The ninth annual training course for Medical Department reservists of the Army and Navy will be held at the Mayo Foundation, Rochester, Minnesota, October 3 to 16, 1937.

2. This training course was first inaugurated by the Seventh Corps Area at the request of the Mayo Foundation to give training in military medicine to the young medical men connected with the foundation. Other reserve officers requested permission to enroll and to take advantage of the opportunity to attend the clinical presentations during the morning hours. Such permission was granted and attendance has become so increasingly popular that it is now necessary to limit enrollment.

3. The program will follow the plan of past years. The morning hours will be devoted entirely to professional work in special clinics and study groups. Officers in attendance may select the course they wish to follow from the wide variety of presentations offered. The afternoon and evening will be devoted to a medico-military program under the direction of the Surgeon of the Seventh Corps Area (Army) and the Surgeon of the Ninth Naval District (Navy).

4. This training is on an inactive duty status and is without expense to the government. Enrollment is open to all Army and Navy reservists of the Medical Departments in good standing. Applications should be submitted to the Surgeon of the Seventh Corps Area, Omaha, Nebraska, or to the Surgeon of the Ninth Naval District, Great Lakes, Illinois. Enrollment is limited to two hundred.

5. The Surgeons General of the Army and Navy have signified that they will attend and it is believed that the Surgeon General of the Public Health Service will also appear on the program.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

Tuesday Noon, May 18, 1937

Luncheon.—Creve Coeur Club, Mrs. Frank P. Hammond, President, presiding.

Mrs. Hammond opened the Luncheon Session by introducing members of her Board to the group. She next introduced the President-Elect, Mrs. H. B. Henkel, and the Peoria hostess, Mrs. Milo T. Easton and her Committee. Mrs. Robert Fitzgerald, our honored guest speaker, and National President, from Wauwatosa, Wisconsin, and our National Treasurer, Mrs. Eben J. Carey of Milwaukee, Wisconsin, who traveled with her, were introduced by Mrs. Hammond.

Mrs. Fitzgerald spoke very inspiringly on the privilege of membership in an auxiliary which numbers 16,000 and which showed an increase of 1,000 this year. She also stressed our special obligation in belonging by giving the laity authentic information on health matters. Mrs. Fitzgerald related some of the many interesting experiences she has had visiting auxiliaries throughout the year, this being her 16th state to date. In closing she expressed appreciation for our splendid work in *Hygeia* for the year, and thanked us for our hospitality. Mrs. Carey also spoke to us briefly and thanked us for her enjoyable stay in Peoria.

Mrs. F. P. Hammond expressed our thanks to our two honored guests and our Peoria hostesses for the lovely luncheon, especially to Mrs. Milo T. Easton and her Committee.

Tuesday Afternoon, May 18, 1937

Tenth Annual General Session for all Physicians' Wives, Jefferson Hotel, Mrs. F. P. Hammond presiding.

Invocation, Rev. William Atkinson Young.

Address of Welcome, Mrs. Milo T. Easton.

Response, Mrs. John A. Wolfer.

(Mrs. Harry J. Dooley unable to appear as scheduled for response, Mrs. Wolfer very graciously substituted.)

Mrs. Hammond, before opening the business session, introduced the Parliamentarian, Mrs. Morrow. Mrs. Hammond introduced Mrs. J. P. Simonds as Chairman of Resolutions, and who will receive any recommendations from body at large.

Mrs. Hammond introduced Mrs. Robert Fitzgerald, National President, and Mrs. Eben J. Carey, National Treasurer, to the assembly for the benefit of those who did not attend the luncheon.

The minutes of the last Annual Session are not read as they were approved at last convention Post Board Meeting.

Roll Call: The following members of the Board

were present: Mrs. F. P. Hammond, Chicago; Mrs. H. B. Henkel, Springfield; Mrs. E. J. Berkheiser, Chicago; Mrs. I. L. Foulon, East St. Louis; Mrs. William Raim, Chicago; Mrs. H. M. Camp, Monmouth, Recording Secretary, pro-tem.

Councilors: Mrs. R. E. Davies, Spring Valley; Mrs. Lucius Cole, River Forest; Mrs. F. E. Bollaert, East Moline; Mrs. E. F. Allen, Arcola.

Chairmen of Standing Committees: Mrs. H. B. Henkel, Springfield; Mrs. V. M. Seron, Joliet; Mrs. H. M. Camp, Monmouth; Mrs. A. B. Middleton, Pontiac; Mrs. R. K. Packard, Chicago; Mrs. J. A. Wolfer, Chicago; Mrs. M. L. Hole, Danville; Mrs. F. O. Fredrickson, Chicago; Mrs. I. L. Foulon, East St. Louis; Mrs. Milo T. Easton, Peoria.

By Counties:

Cook County ..10	Knox 1	Lee 0
Douglas 2	Livingston 0	McLean 0
Marion 0	Randolph 0	R. Island 1
Saline 0	Sangamon 1	St. Clair 2
Vermilion 2	Warren 1	Will-Grundy ... 1
Woodford 2	Montgomery ... 0	LaSalle 1
TOTAL 26	Adams 2	

A report was read at this time by Chairman of Credentials and Registration which was as follows:

Tuesday, 2:00 P. M.

Board officers	6	
Councilors	4	
Chairmen	10	
	18	
Delegates	27	(Explanation: two officers
Alternates	9	were also chairmen.)
Members	51	
Guests	98	
Voting Body	39	
	203	

Officers Reports: It was moved by Mrs. Lucius Cole and seconded by Mrs. J. A. Wolfer that all reports be accepted as one. Motion carried.

The following officers gave reports: Mrs. H. B. Henkel, President-Elect, no report. Corresponding Secretary, Mrs. A. H. Baugher. Aside from official business, she reported sending letters of sympathy to Miss Jean McArthur of Chicago at the loss of her sister, to Mrs. R. J. Coultas of Mattoon at the loss of her husband, to Mrs. Lucius Cole when she injured her foot, and to Mrs. A. H. Brumback during her illness.

First Vice-President, Mrs. E. J. Berkheiser read her report which told of working with health programs in other organizations, always subject to the approval of the Medical Society, namely the Cancer Research Committee of the Chicago Woman's Club, and of arranging programs for the Lake View Woman's Club.

Second Vice-President, Mrs. I. L. Foulon, no report except that she attended the two Board Meetings and served as Recording Secretary pro-tem at the March 20 meeting.

Treasurer, Mrs. William Raim, read her report showing a balance on hand of $774.73. An itemized account appears in her report.

Recording Secretary, (pro-tem) Mrs. H. M. Camp, no report except taking of minutes at the morning session of the Board and County Presidents.

First Vice-President, Mrs. E. J. Berkheiser, takes the chair while the President reads her report.

Mrs. F. P. Hammond read an excellent report giving a brief resume of the work accomplished by each Chairman. Of especial interest was the announcement of the organization of three new counties, La-Salle, Montgomery and Adams, and of a new branch in Cook County, bringing the total there to eight.

Her report showed results of much outstanding work on many of her committees. She reported writing 310 letters, exclusive of letters of the Corresponding Secretary and of miscellaneous form letters. During the year she visited 12 counties and appeared on their programs. She worked especially hard to organize Peoria, and visited there six times. She reported two important actions of the Board:

1. Motion to have Mrs. R. K. Packard's resolution relative to assistance of Advisory Committee presented to the House of Delegates of the Illinois State Medical Society unanimously carried.

2. A motion that the Auxiliary go on record as cooperating with the Woman's Field Army of the American Association for Control of Cancer, unanimously carried.

In closing her report, Mrs. Hammond extended her thanks and appreciation to the Advisory Committee, Dr. R. R. Ferguson, Chairman, Dr. John R. Neal, Dr. R. K. Packard, and Dr. H. M. Camp; to Miss Jean McArthur, Dr. C. J. Whalen, Editor of the ILLINOIS MEDICAL JOURNAL; to Mrs. Milo T. Easton and her Convention Committee; to Mrs. H. B. Henkel the President-Elect, and Organization Chairman for her splendid report; and to each officer, Chairman and active Councilor.

Mrs. Hammond's report was accepted and received with a rising vote of thanks.

Mrs. H. B. Henkel, Organization Chairman, read a very commendable report showing an active and worth while year. Noteworthy facts in her report were the organization of three counties—namely, Montgomery County on December 16, 1936, in the Fifth District La Salle County on January 21, 1937 in the Second District; and Adams County on April 30, 1937, in the Sixth District.

Counties organized ..... 21 (19 active)
Membership in 1937.....793

The Counties that have been given permission to organize:

Wabash ..... 9th District	Iroquois .....11th District
Fulton ..... 4th District	Carroll ..... 1st District
Belleville .....10th District	Crawford ..... 8th District
Lake ..... 1st District	Stephenson ..... 1st District
Clark ..... 8th District	Greene ..... 6th District
Du Page .....11th District	Macoupin ..... 6th District

Counties visited during the year: St. Clair, Marion, Montgomery, Cook, Bureau, Adams, Fulton, La Salle, Peoria. (Speaker at seven of these counties.)

Contributed article to the ILLINOIS MEDICAL JOURNAL on organization work.

Mrs. Hammond complimented Mrs. Henkel on her work.

REPORTS OF COUNCILORS

First District: Mrs. Imas Rice, absent. Her report

read by Corresponding Secretary, Mrs. A. H. Baugher, which told of a fine year for Kane County. She told of need of contacting the McHenry County Auxiliary to increase the interest there.

Second District: Mrs. Raymond E. Davies reports enthusiastic organization of La Salle County on December 3, 1936. She reported attending all of their meetings but one. She reported an increase of 11 members in her Bureau County Auxiliary—a total now of 32 members.

Woodford County reported 100 per cent paid membership which is very outstanding.

Third District: Mrs. Lucius Cole reports attendance and active interest in following meetings:

1. All Board Meetings.
2. Majority of Cook County Meetings.
3. Visits Aux Plaines and Jackson Park Branches of Cook County.
4. Fall Board Meeting of Woman's Auxiliary to A. M. A.
5. Milwaukee County Auxiliary, Wisconsin.

Mrs. E. F. Meyers, absent. Report read by Corresponding Secretary, Mrs. A. E. Baugher. She reported attendance at all State Meetings but one. An interesting report from the President of the Englewood Branch told of a big Laity Day meeting in January with 20 organizations represented. Also noteworthy was a $25.00 donation to *Hygeia.*

Mrs. C. A. Hedberg, absent. Report read by Corresponding Secretary, Mrs. A. H. Baugher. Mrs Hedberg reported the activities of the North Side and North Shore Branches of the Woman's Auxiliary to the Chicago Medical Society

North Side Branch: 80 members, 12 new ones. Six educational meetings held during the year; three at hospitals and three at members' homes.

On March 15, Presidents and Legislative Chairmen of North Side Women's Clubs were guests of the Branch at a meeting of the Central Organization.

North Shore Branch: Very progressive year. Membership 85. Six regular meetings at homes and educational programs, and one benefit bridge. This Branch has established an "Educational Fund" for the children of doctors who may need assistance.

Fourth District: Mrs. F. E. Bollaert reports assisting at Tea on October 27, 1936 with guest speakers, Mrs. F. P. Hammond, Mrs. J. A. Wolfer and guests from Knox, Warren and Henry Counties in attendance. Mrs. Bollaert hopes to report organization of Henry County in the near future. April 21, 1937 Laity Day Tea, 140 in attendance. Attended a Warren County Meeting in Monmouth on May 12, 1937. Rock Island holds regular monthly meetings at the hospitals at the same time of the Doctors' meetings.

Fifth District: Mrs. J. E. Reisch absent, resigned—written report read by Corresponding Secretary, Mrs. A. H. Baugher. Mrs. Reisch reports working with Lincoln and Jacksonville ladies, but no definite contacts or results for an Auxiliary effected. She reports attending meetings in La Salle and Hillsboro with Mrs. Henkel.

Sixth District: No report.

Seventh District: Mrs. T. D. Laney, no report.

Eighth District: Mrs. E. S. Allen. Her district consists of 11 counties with 4 organized—Coles, Cumberland, Douglas and Vermilion. She reports an increase in her own Douglas County Auxiliary from 7 members in 1929 to 14 members in 1937. She reports Crawford and Clark Medical Societies have consented to an Auxiliary organization, but no unit has been organized as yet due to the small group.

Ninth District: Mrs. E. W. Burroughs, absent. Brief report by wire read by Corresponding Secretary, Mrs. A. H. Baugher. Report: no new contracts, and she attended three Saline meetings.

Tenth District: Mrs. R. F. Stanton, no report.

Eleventh District: Mrs. E. R. Steen, no report.

Chairmen of Standing Committees

Press and Publicity: Mrs. V. M. Seron and her committee, Mrs. Moher, Mrs. Madden, submitted a full and interesting report.

1. Eleven counties sent in news items for year book.
2. Monthly article appeared in the Illinois Medical Journal, contributed by a Board Member.
3. Exhibit from Illinois Auxiliary prepared for National Exhibit in Atlantic City at request of National Chairman of Exhibits. (Exhibit by Janet Bruce, artist.)
4. News items received showed pronounced increase in interest and activity among the Auxiliaries.

Legislation: Mrs. W. D. Chapman. From her report she has had a very intensive year, keeping informed on harmful legislative bills and keeping all county legislative chairmen and all Board Members informed. Mrs. Chapman has been ably supported by the legislative chairman, Dr. John R. Neal of Springfield, Mrs. John R. Neal, and Mrs. W. R. Cubbins of Chicago.

Bills Contested: Dangers of U. S. Public Health Service being absorbed by newly created Department of Public Welfare of the Federal Government.

Article in *Literary Digest,* January 30, 1937, "Science and Medicine" dealing with Socialized Medicine, with medical profession misquoted. Feb. 27, 1937 issue, Dr. Morris Fishbein and Dr. Henry E. Perry, President Michigan State Society, corrected the errors.

In calendar of bills introduced in this session of State Legislature 236 out of 1,200 odd bills related to medical and public health matters.

Senate Bills 171 and 172 Chiropractic measures. These bills would legalize the licensure of chiropractics and set up an independent state examining committee made up of chiropractors. If passed these bills would noticeably lower educational standards and serve as an opening wedge for the osteopaths, mecho-therapists, naturopaths, and other drugless cults to demand their special board.

Doctors' wives in counties of this district were contacted even when county had no auxiliary.

House Bill 615—bill in favor of anti-vivisection, yet neither animal experimentation or vivisection is mentioned in the bill. Both are subtly prohibited, however, by implication. "It is the most clever and astute legislative manoeuver ever attempted in favor of anti-vivisection."

Printing Chairman: Mrs. H. M. Camp. Reported printing 200 revised copies of the Constitution and By-Laws at cost of $15.00, without map of Councilor Districts. Itemized account of stationery printed appears in her report. Total cost of printing for the year was $57.42, all of which has been paid to the Commercial Art Press. Approximately 375 letterheads printed on 1 side, 35 printed on both sides, and 250 envelopes will be turned over to the new President.

Program Chairman: Mrs. A. B. Middleton, read a splendid report, in part as follows:

1. Assisted in compilation of Handbook for County Auxiliary.
2. Published article in Illinois State Medical Journal on "Programs."
3. Sent 24 packages suggesting topics for "Health Programs."
4. Sent questionnaire to 20 County Presidents, all responded except Marion County.
5. Report of year's program sent to National and Regional Program chairman.

Summary of Reports on Questionnaire:

1. Fourteen Counties have program chairmen.
2. Twelve Counties meet at same time as County Medical Society.
3. Average attendance for all Auxiliaries, 50 per cent.
4. Seven counties used the Handbook for County Program Chairmen.
5. Sangamon County has their programs planned and printed at the beginning of the year.
6. St. Clair County Public Relations Committee held a meeting inviting all program chairmen, and Presidents of Social, Civic, Cultural, and Parent-Teachers Groups—87 officers of different groups attended.

(They were told speakers would be sent to their organization free to talk on health subjects if they would only ask for them, 50 per cent availed themselves of this opportunity.)

7. One of St. Clair County's members broadcast over WTMB the first Friday of each month, talks prepared by the A. M. A. were read.
8. Nine Counties had a Laity Day.
9. Thirty-two social meetings were held.
10. Four Counties reviewed *Hygeia* every meeting —all encourage home reading of *Hygeia.*
11. Seven counties reviewed editorials from the Illinois Medical Journal.

Auxiliaries having the most meetings in the year have the best programs and the largest attendance. Also where there is an active Medical Society and a regular time for meetings, and the Auxiliary meets at the same time, it is more progressive and successful.

Public Relations: Mrs. John A. Wolfer, chairman for her second year, gave a very energetic and commendable report. In part:

1. Outline of this year's questionnaire sent to all counties, reports from which "proved that this year Auxiliaries stressed:
   a. Self and lay education.
   b. Hygeia.
   c. Legislation.
   d. Radio program interest increased.
2. Twenty Laity Days reported. Nine held downstate, and 11 in Cook County, with a wonderful attendance at all Laity Day Programs reported. Kane County heads the list with an attendance of 300.
3. Library of books about doctors not fully appreciated as yet.
4. Records of members affiliations with other organizations well kept up and pleasing to note.
5. Most counties use parties for raising funds. Several Medical Society groups donate funds to their auxiliaries.
6. More attention should be shown:
   a. Reports show insufficient number of subscribers to National News Letter.
   b. Magazine articles.
   c. Dr. Cramp's articles on harmful drugs.
   d. Periodic health examinations.

Mrs. Wolfer reports attending all meetings. She spoke before Rock Island County Auxiliary, New South Chicago branch, New Irving Park branch, being a guest at Will-Grundy Laity Day, and writing for the November 1936 issue of the Illinois Medical Journal, and sending 100 radio announcement cards to St. Clair County.

Reports to be continued Wednesday morning as the Tea and Musicale at Peoria Country Club was scheduled for 4:00 o'clock.

A motion was made by Mrs. Lucius Cole and seconded by Mrs. H. B. Henkel for adjournment. Motion carried. Meeting adjourned.

Tuesday Afternoon, May 18, 1937

The business meeting was adjourned before completion to enable the ladies to enjoy a tea and musicale at the beautiful Peoria Country Club.

A lovely musical program was enthusiastically received.

Program

Mrs. Harry Lloyd, violinist; Mrs. Gilbert Geiger, soloist; Mrs. Harry A. Durkin, accompanist; and Master Harry A. Durkin, piano soloist.

Tuesday Evening, May 18, 1937

A very enjoyable dinner-bridge was held at the Jefferson Hotel.

Chairman—Mrs. F. M. Meixner, Mrs. E. C. Kelly, Mrs. R. A. Hanna and Mrs. A. D. Phillips.

Mrs. F. P. Hammond presided at the speakers' table and introduced Mrs. Robert Fitzgerald, National President; Mrs. Milo T. Easton, Convention Chairman, and Mrs. Eben J. Carey, National Treasurer. Dr. Rolland L. Green, retiring president of the Illinois State Medical Society, gave a word of greeting and Dr. Rollo K. Packard delivered the address of the evening. Following dinner, a program was much enjoyed with bridge later. Lovely guest prizes were given to those participating in bridge.

Respectfully submitted,

DORIS H. CAMP,
Recording Sec'y, pro-tem.

Wednesday Morning, May 19, 1937

8:00 o'clock—Breakfast for Incoming Board Members, Jefferson Hotel.

9:30 o'clock—Business Session, Jefferson Hotel.

The Second Session of the Annual Business Meeting of the Woman's Auxiliary to the Illinois State Medical Society was opened at 9:30 A. M., May 19, 1937, in the Jefferson Hotel with the President, Mrs. F. P. Hammond presiding.

A silent tribute was given in memory of those who have passed on during the past year.

Due to the shortness of time before the Presidents' Luncheon, it was decided that the minutes of yesterday's session not be read, but later approved by a special committee to be appointed by the incoming President, Mrs. H. B. Henkel.

The following responded to roll call:

Officers	6
Councilors	3
Delegates	20
Alternates	1
Chairman	6
Total	36

The business session opened with a continuation of chairmen's reports.

Chairman of *Hygeia,* Mrs. M. L. Hole, read her report, which was, "In part."

She reported, attending all Board Meetings.

2. Preparing an article for February Illinois Medical Journal.

3. Arranging for *Hygeia* Exhibit at State Meeting.

4. Compiling list of *Hygeia* subscribers throughout the State.

5. Winning of $50.00 prize by Illinois for Group 3—200 members and over. (Cook County brought in 406 subscriptions to win.)

She reported that the period of May 1, 1936 through April 30, 1937 showed a grand total of 579 subscriptions.

A motion was made by Mrs. Saunders to accept all reports as a whole, which was seconded by Mrs. Wm. Raim. Motion carried.

Revision Chairman, Mrs. R. K. Packard read revisions of Constitution and By-laws.

Constitution and By-Laws

Article III—Dues

Add: The word "Organization" before dues. To read: "Organization and Dues."

Article III.—Organization and Dues. (p. 8—new constitution).

Add: New section.

Section 2 (a) A County Medical Society having less than fifty (50) members, two or more Counties may organize an Auxiliary with the consent of the Medical Societies.

Add: New paragraph.

Section 2 (b) Each County Auxiliary shall submit its Constitution and By-Laws to the State Auxiliary Board for approval.

Article VI—Nominations and Elections

Section 5—Qualifications (p. 10—new constitution).

Add: (a) To first paragraph.

Add: (b) New paragraph.

No one shall serve as President-Elect who has not been an active member in her County Auxiliary serving as an officer or chairman.

Revision Committee
Mrs. A. H. Brumback,
Mrs. Clarence Goodwin,
Mrs. Rollo K. Packard, Chairman.

March, 1937

After discussion on revisions for Article III, it was moved by Mrs. R. K. Packard, seconded by Mrs. Lucius Cole that these revisions be adopted. Motion carried. Revision adopted.

After considerable discussion regarding (b) of Section 5, a motion was made by Mrs. A. B. Middleton and seconded by Mrs. W. D. Chapman that the word "Councilor" be substituted in this paragraph, for "Chairman." Motion carried and paragraph adopted as amended.

Mrs. F. O. Fredrickson—Chairman of Finance read the report of the Finance Committee for 1936-1937 and the Proposed Budget for 1937-1938 Based upon a membership of 900.

Report of Finance Committee 1936-37 and Proposed Budget 1937-38

This Committee presents the following record of expenditures for the year 1936-37, showing also the budget as planned for 1936-37 as follows:

	1936-37 Budget	Expended	Balance on hand	Overdrawn
President—				
Postage, Telephone, Transportation	$135.00	$ 99.05	$ 35.95	....
Corr. Secy.	....	....	....	....
Organization—				
Telephone, Postage	50.00	58.55	....	$ 8.55
Transportation	....	....	....	....
Program—				
Public Relations	40.00	15.97	24.03	....
Hygeia	....	....	....	....
Legislation	....	....	....	....
Telephone & Postage	40.00	31.37	8.63	....
Printing, Stationery	60.00	*121.11	....	61.11
Mimeographing	....	....	....	....
Board Transportation	100.00	79.24	20.76	....
National Dues	175.00	**203.50	....	28.50
Miscellaneous	100.00	81.51	18.49	....
	700.00	690.30	107.86	98.16

Total Budget 1936-37 ..... $700.00
Total Expenses 1936-37 ..... 690.30

$ 9.70

*Includes New Issue Constitution & By-Laws.
**Current members—21 in arrears—Total 814.

PROPOSED 1937-38 BUDGET BASED UPON MEMBERSHIP OF 900

President	$175.00
Organization	100.00
Program	50.00
Telephone & Postage	50.00
Printing, Stationery & Mimeograph	100.00
Board Transportation	100.00
National Dues	225.00
Miscellaneous	100.00
	$900.00

Respectfully submitted,
Mrs. William Raim
Mrs. R. K. Packard
Mrs. A. H. Brumback
Mrs. F. O. Fredrickson, Chrm.

Mrs. R. K. Packard moved that the report be accepted. Mrs. H. B. Henkel seconded the motion. Motion carried.

Chairman of Archives, Mrs. John Soukup, was not present.

A written report was submitted which was read by the corresponding Secretary, Mrs. A. H. Baugher. "In Part."

1. In response to a request for histories written to twenty counties—only ten have replied.

2. Reports that McHenry County has ceased to function.

3. Reports organization of three new counties.
   a. LaSalle
   b. Montgomery
   c. Adams

4. Reports files for Women's Auxiliary being in good condition with contents listed.

Chairman of Hostess Committee—Mrs. A. H. Brumback, absent. No report.

Chairman of Credentials and Registration—Mrs. I. L. Foulon.

This final report was read by Mrs. Foulon.

Officers	6	Members	60
Councilors	4	Guests	173
*Chairmen	10	Total Registered	291
Total Board	18	*Two of chairmen were also officers.	
Delegates	28		
Alternates	12		

Mrs. Foulon submitted no written report for her year's work but gave an oral report telling of attending the Board Meetings and of enjoying her work.

At this time announcement was made of a paper to be read by Mrs. John A. Wolfer at Radio Station WMBD on behalf of its author Dr. A. H. Brumback, entitled, "The Old Time Doctor."

It was suggested that the paper be read to the group at the close of the business session.

Convention Chairman—Mrs. Milo T. Easton gave an oral report. She especially spoke of the pleasure she had derived in working to make the Convention arrangements a success and took this opportunity to thank all who contributed to that success for their co-operation.

A rising vote of thanks was given to Mrs. Easton in recognition of a delightful convention.

County President's Reports

1. Rock Island County—Report submitted by the President, Mrs. Harold Parsons, absent. Report read by Mrs. Youngbird, delegate.

2. Adams County—Organized April 30, '37. No report.

3. Bureau County—Report submitted by President, Mrs. R. E. Davies. Mrs. Davies introduced Bureau County's new President, Mrs. Hammond welcomed their new President, Mrs. Nix, and expressed her hope that she would lead the Bureau County Auxiliary in the same commendable manner in which Mrs. Davies lead them.

4. Coles-Cumberland County—Report submitted by Mrs. F. M. Brayshaw—absent. Report read by Corresponding Secretary, Mrs. A. H. Baugher.

5. Cook County—Splendid report submitted by Mrs. G. Henry Mundt, President.

6. Douglas County—Report read by Corresponding Secretary, Mrs. A. H. Baugher. Report signed by the President, Mrs. Phillips.

7. Kane County—Mrs. E. M. Thomas asked permission to mail her report to the Corresponding Secretary due to the fact that it was partially damaged.

8. Knox County—Oral report given by retiring President and delegate, Mrs. G. C. Klein due to illness of the new President, Mrs. C. A. Ross. Written report handed in later.

9. LaSalle County—New county. No report. Mrs. R. E. Davies introduced the President, Mrs. De Vries, who was in turn welcomed by our President, Mrs. Hammond.

10. Livingston County—Mrs. A. B. Middleton gave an oral report, reporting that the County had elected officers and had thirteen paid up members.

11. McHenry County—Mrs. Frank Alford, President. No representation. No report.

12. Montgomery County — Newly organized — no written report but splendid oral report given.

13. McLean County—Splendid report by Mrs. B. L. Rypins, new President who was introduced and welcomed by Mrs. Hammond.

14. Marion County—Mrs. T. D. Laney, President —no report.

15. Sangamon County—Mrs. S. R. Magill, President, read a splendid report of their year's work. Noteworthy was their year book containing complete program and which serves as an excellent guide to their members.

16. St. Clair County—Excellent report read by Mrs. C. C. Winning, President.

Interest Notes: a. A ten minutes review of *Hygeia* is read at each monthly meeting.

b. Members gave nine radio broadcasts this year from material furnished them by A.M.A.

c. Closing quotation—"We have armed ourselves with the knowledge of anti-medical movements, Health, Insurance, State Medicine, etc., and we quietly move among the laymen, spreading the gospel of organized medicine, and feeling that at least an integral part of that magnificent group of men, the Illinois State Medical Society, known as our husbands.

17. Vermilion County—Report submitted by the President, Mrs. Carrie W. Sistler—absent. Report read by Mrs. I. J. Scott, Second Vice-President.

Interest Note: a. Ten regular meetings held.

18. Warren County—Report read by Mrs. W. A. Frymire, delegate. Report submitted by Mrs. H. M. Camp, Secretary.

19. Will-Grundy County—Report submitted by Mrs. Matt Bloomfield, President—absent. Report read by Mrs. Worthley, delegate. Report told of a very active year.

Interest Note: a. This county has established a circulating library, buying five books, which are eventually to be presented to the Library. Each book bears a book plate with their Auxiliary inscribed on it.

20. Woodford County—Report submitted and read by the President, Mrs. Helen Nickel.

Interest Note—One Hundred per cent membership—Perhaps only one other county throughout National Organization has this distinction.

Resolutions Chairman—Mrs. J. P. Simonds and her committee of Mrs. F. O. Fredrickson and Mrs. A. B. Middleton submitted a written report—which was read, by the Corresponding Secretary, Mrs. A. H. Baugher for Mrs. Simonds, who was also present.

Report of the Committee on Resolutions

Madame President and Members:

The Committee on Resolutions Presents the following report:

Resolved, That the Women's Auxiliary to the Illinois State Medical Society in convention assembled extends its sincere thanks to the following:

To Mrs. Milo Easton, Peoria, Illinois, Convention Chairman and to all members of her committee who have so generously and hospitably planned and executed the details of the convention;

To Mrs. I. L. Foulon, Chairman of Committee on Credentials and Registration, and to her committee;

To Dr. Harold M. Camp, Secretary of Illinois State Medical Society for assisting in Convention Registration and in other plans for this meeting;

To Police Lieutenant Hathaway of the City Traffic Department of Peoria for escorting the Auxiliary on trips over the city;

To Rev. William Atkinson Young, pastor of the First Presbyterian Church of Peoria, for the invocation at the opening meeting;

To Dr. Rollo K. Packard, President-Elect, Illinois State Medical Society, for his address Tuesday evening;

To Dr. Frank J. Jirka, Director of the State Department of Public Health, for his address Wednesday;

To the management of the Jefferson Hotel for the courtesies extended the convention;

To the *Peoria Star,* and the *Peoria Journal Transcript* for the generous space allowed the Publicity Committee;

To Mrs. Robert E. Fitzgerald, the President of the Women's Auxiliary to the American Medical Association, for her inspiring and informative address at Tuesday's luncheon;

To Mrs. Frank P. Hammond, President of the Women's Auxiliary to the Illinois State Medical Society, for the time she has given so generously, loyally and devotedly to the Auxiliary;

To all the members of the State Board whose cooperation has made possible the fine reports of this Convention.

Respectfully Submitted,
(Signed) Nora C. Fredrickson
Mrs. F. O. Fredrickson
Mrs. A. B. Middleton
(Signed) Minnie Simonds
Mrs. J. P. Simonds,
Chairman

Mrs. Simonds stated that if there were any omissions in her report, she would be glad to insert them later.

Mrs. Simonds moved the report be accepted, Mrs. Lucius Cole seconded the motion. Motion carried.

Nominating Committee—Report read by Mrs. E. J. Berkheiser.

Report of the Nominating Committee

OFFICERS

President—Mrs. Herbert B. Henkel, 2135 Wiggins Avenue, Springfield, Illinois.

President-Elect—Mrs. A. H. Baugher, 5214 Greenwood Avenue, Chicago, Illinois.

Corresponding Secretary—Mrs. S. R. Magill, East Lake Shore Drive, R. R. No. 3, Springfield, Illinois.

First Vice-President—Mrs. Charles C. Winning, 763 Vogel Place, East St. Louis, Illinois.

Second Vice-President—Mrs. John A. Wolfer, 415 Surf Street, Chicago, Illinois.

Third Vice-President—Mrs. E. G. Beatty, 621 W. Lincoln, Pontiac, Illinois.

Treasurer—Mrs. William Raim, 178 North Euclid Avenue, Oak Park, Illinois.

Recording Secretary—Mrs. F. L. Heck, 1425 June Way Terrace, Chicago, Illinois.

COUNCILORS

First District—Mrs. A. E. McCornack, 265 Hamilton Avenue, Elgin, Illinois.

Second District—

Third District—Mrs. J. P. Simonds, 25 East Walton Place, Chicago, Illinois; Mrs. Lucius E. Cole, 1117 Lathrop Avenue, River Forest, Illinois; Mrs. A. H. Brumback, 1503 Jackson Boulevard, Chicago, Illinois.

Fourth District—Mrs. F. E. Bollaert, 906 20th Avenue, East Moline, Illinois.

Fifth District—Mrs. Winston H. Tucker, 539 South Grand West, Springfield, Illinois.

Sixth District—Mrs. Walter Whitaker, Main Street, Quincy, Illinois.

Seventh District—Mrs. Thos. D. Laney, 2111 West Main Street, Salem, Illinois.

Eighth District—Mrs. Gerry Brown Dudley, Charleston, Illinois.

Ninth District—

Tenth District—Mrs. Henry H. Hurd, 1360 North 42nd Street, East St. Louis, Illinois.

Eleventh District—Mrs. V. R. Seron, 1806 N. Williams St., Joliet, Illinois.

Signed by:
Ethel L. Magill
Florence H. Thomas (Mrs. E. M.)
Ethel L. Savage (Mrs. R. G.)
Eva M. Packard
Gladys Berkheiser (Mrs. E. J.)
(Chairman)

Mrs. Lucius Cole moved that the nominations for officers be accepted as read. Mrs. H. B. Henkel seconded the motion. Motion carried.

Introduction of new President, Mrs. H. B. Henkel and handing over of gavel by Mrs. Hammond.

Presentation of President's pin to Mrs. Hammond by Mrs. Chapman. Mrs. Chapman stated that it was a great pleasure to present this pin to Mrs. Hammond who had served so faithfully in the offices of Corresponding Secretary, Chairman of Press and Publicity, Treasurer (2 years), and President.

Mrs. Hammond acknowledged her sincere thanks to Mrs. Chapman and the group.

Mrs. H. B. Henkel gave a brief welcoming speech at this time.

Mrs. John A. Wolfer read Mrs. A. H. Brumback's radio presentation entitled, "The Old Time Doctor," which was greatly enjoyed by all present.

Mrs. Henkel asked for motion for adjournment.

Meeting adjourned by proper action.

Wednesday Afternoon, May 19, 1937

1:00 o'clock President's Luncheon.

The President's Luncheon was held at the Jefferson Hotel in honor of Mrs. F. P. Hammond.

Luncheon Program

Mrs. F. P. Hammond, presiding.

Introduction of Past Presidents by Mrs. Hammond.

Mrs. G. Henry Mundt, Mrs. Lucius Cole, Mrs. R. K. Packard, Mrs. W. D. Chapman, Mrs. John R. Neal.

Introduction of President-Elect, Mrs. A. H. Baugher, Chicago. Also of Dr. A .H. Baugher, Dr. H. B. Henkel, Dr. F. P. Hammond.

Mrs. F. P. Hammond spoke on the Auxiliary progress made in Illinois with 21 organized counties to our credit, and of the honor of having three of our members on the National Auxiliary Board, namely, Mrs. R. K. Packard, Mrs. J. P. Simonds, and Mrs. Lucius Cole. She spoke of the privilege of belonging to an organization of 16,000 women who compose the National Organization, with all of us working for the same aims.

Presentations:

At the conclusion of Mrs. Hammond's address, her Jackson Park Branch presented her with a lovely corsage as a token of their esteem and affection, to which she graciously responded.

Presentation of silver tray by Mrs. R. K. Packard on behalf of the Board Members—gracious response by Mrs. Hammond.

Introduction of Mrs. H. B. Henkel, incoming president, by Mrs. F. P. Hammond. Mrs. Hammond especially praised Mrs. Henkel for her organization work throughout the year.

Presentation of beautiful basket of flowers to Mrs. Henkel by a member of the Sangamon County Auxiliary, and lovely response by Mrs. Henkel.

Introduction of Mrs. Milo T. Easton and expression of appreciation for her work before and during the convention, by Mrs. Hammond.

elected officers.

Interduction by Mrs. H. B. Henkel of her newly

Introduction of Dr. Frank J. Jirka, Director, State Department of Public Health, Springfield.

Address by Dr. Jirka. Interesting and vivid address on the flood in southern Illinois with movies.

Adjournment for tour through Hiram Walker Distillery.

Wednesday Evening, May 19, 1937

President's Dinner and Dance, ballroom of the Hotel Pere Marquette.

Thursday Morning, May 20, 1937

8:00 Board Breakfast—Guests of Mrs. F. P. Hammond, President of the Auxiliary.

9:30 Post-Convention Board Meeting—Mrs. H. B. Henkel, new President, presiding, at the Jefferson Hotel.

Respectfully submitted,

Doris H. Camp,

Recording Sec'y Pro Tem

A CAMPAIGN AGAINST TRACHOMA

Trachoma, that dread eye-disease the cause of which is unknown, has for decades been prevalent in southern Illinois. Other sections of the state have largely escaped its ravages, but in 14 of the southern counties, there has been a steadily increasing concentration of this type of conjunctivitis.

Many of the sufferers live in poverty on isolated farms and, even though the Illinois Society for the Prevention of Blindness offered to give them weekly treatment, frequently they could not obtain transportation to the society's clinics.

Obviously, it was necessary to provide not only facilities for treating the disease, but also some means of transportation for the hundreds of rural sufferers. And since the trachoma-infested area comprises some 3,000 square miles, this problem of transportation gave the officials their biggest headache.

The problem was solved, however, by the Works Progress Administration.

A project, sponsored jointly by the Illinois Department of Public Health and the Illinois Society for the Prevention of Blindness and put into operation by WPA, now provides 20 bus runs covering the 93 towns in the 3-000-square-mile area where trachoma is most prevalent.

Besides bringing into the clinics patients from surrounding towns and villages, the WPA buses also pick up trachoma sufferers along the highways and byways of their routes.

To reach the bus-routes, the patients walk, ride horses or thumb lifts in wagons or in any other available vehicle. For instance, into the Shawneetown clinic one day stalked an elderly woman dressed in a wrapper and a sunbonnet. She looked as if she had stepped out of a story book of the last century. She had ridden a horse bareback the three miles from her house to the bus-line. There she had tied her horse, got in the bus and traveled 20 miles more to town for the treatment. Afterward the bus took her back, and she unhitched her horse and rode home. She was 69 years old.

Trachoma clinics are in operation at Harrisburg, Vienna, Shawneetown, Herrin, Eldorado and Jonesboro.

Occasionally these clinics are located in somewhat unusual places. In Vienna, for example a library basement was made available for the trachoma work; WPA renovated it and provided adequate equipment. At Jonesboro an old jailhouse was turned into a clinic; WPA repaired the building and made it suitable for medical work.

About 3,000 cases, including several hundred suspected victims, are receiving treatment in the five clinics.

When the disease is not too far advanced, complete cures are possible, and even in extreme cases the program of the disease may be checked and the advent of blindness at least, postponed.

The trachoma clinics are effecting a genuine saving for Illinois taxpayers. Pensions for the blind in Illinois average $5,000 a day, according to Miss Audrey Hayden, director of the Illinois Society for the Prevention of Blindness, and the education of a blind child in a state institution costs about $800 a year. WPA funds for bus clinic service amounted to $20,000, to which the state added $25,000 and the Society for the Prevention of Blindness $6,000. Figuring conservatively, if, on an average, blindness in the 1,500 patients is postponed one year, the state will save in blind pensions during that year approximately $180,000.

Clinic reports indicate, however, that blindness will be in many instances entirely prevented, and in others indefinitely postponed.

This campaign against trachoma is merely one of many similar activities of the Works Progress Administration. During the past two years WPA has initiated scores of health projects. Thousands of individuals have been taken from relief rolls and given employment an sanitation and health projects all over the country The average number of WPA workers engaged in this type of work has been 78,000.

TREATMENT OF HYPERTROPHY OF PROSTATE WITH ESTROGEN

Wugmeister (Paris Medical, June 12, 1937) maintains that hypertrophy of the prostate is due to a hypervirilization of the organism, which takes place during the presenile age because of a deficiency in estrogen. When the anterior hypophysis is no longer inhibited by the estrogen, it produces an excess of its gonadotropic hormones, which in turn stimulate the genital glands. The glandular tissue which hesponds most to this stimulation is that of the periurethral glands and, if the excessive production persists for long periods, hypertrophy of the prostate results. The author admits that this hypothesis is in complete contradiction to that of several other investigators, who maintain that the hypertrophy of the prostate results from a deficiency in testis hormone and a predominance of the estrus-producing hormone. He points out that, if the latter theory corresponded with the facts, the injection of large doses of estrogen would result in an aggravation of the symptoms of hypertrophy of the prostate. This, however, is not so. On the contrary, large doses of estrogen effect an amelioration of the condition. The author resorted to the administration of large doses of estrogen in twenty-three cases of hypertrophy of the prostate. In sixteen of these cases the improvement was marked: there was a diminution in the nocturnal pollakiuria (one or two nocturnal micturitions instead of the former four or six), an improvement in the difficulties at micturition and a reduction in the residual urine. In four other cases the residual urine remained unchanged but the subjective symptoms were considerably improved. The three remaining patients were not improved. Regarding the method of the treatment, the author says that it must be continued for at least twelve weeks and that at least 100,000 international units of estrogen must be injected per week. At first the weekly dose may even be 200,000 units, but as improvement becomes noticeable the weekly dose can be diminished to 10,000 units.

ERYSIPELAS TREATED WITH PRONTOSIL

Breen and Taylor, in London Lancet, June 5, 1937, say: Of their forty-five cases of erysipelas (forty-one of the facial variety), in which they used prontosil in one or another form in thirty-five. All patients were in addition painted locally twice daily with a mixture of glycerin and ichthammol. There were two deaths. Of thirty-five patients treated with prontosil from admission, thirty-three had regressed, one had spread and one was stationary forty-eight hours later. There was one subsequent relapse. Of the ten control cases not treated with prontosil, four had regressed, five had spread and one was stationary forty-eight hours later. There were no relapses. Of the five cases which had spread, three were subsequently treated with prontosil, and within forty-eight hours they had also regressed. The average temperature of the prontosil cases fell to normal or below in forty-eight hours, whereas the average of the other cases remained above normal. As regards the pulse, the advantage lies with the no prontosil group, but as they were clinically milder cases, this was reflected in the lower temperature and pulse rate on admission. The drug was administered by mouth in all but two patients, two tablets of sulfanilamide of 5 grains (0.3 Gm.) each were given three times daily to adults, smaller doses proportionately to body weight being given to children. The single relapse in the prontosil group occurred on the tenth day, but this yielded so promptly to a resumption of treatment that the patient was discharged a week later. The average length of stay in the hospital in the prontosil cases was 18.4 days, which compares favorably with the figure of 23.8 days in the other series.

FATTY ACIDS IN RELIEF OF COMMON COLD

Boyd and Connell, Canadian Medical Association Journal, July, 1937, announce the following conclusions: Following a control period of seven weeks, beginning January 1, during which colds were recorded, they gave 15 minims (1 cc.) of purified linoleic and linolenic acids (vitamin F) daily to forty-one medical students for a further seven weeks, while sixty-five others served as controls. Vitamin F reduced the average incidence of colds by 64 per cent and the average duration by 78 per cent, there being at the same time little appreciable difference in the incidence and duration of the untreated group. Of the treated group, 71 per cent responded favorably and 29 per cent showed no relief. Unpleasant reactions occurred in one-third of the treated cases, diarrhea, nausea and vomiting being the chief side effects, but most of these were temporary and disappeared when the substance was taken with, rather than between meals.

Original Articles

POLIOMYELITIS

With a Review of 139 Patients

ARCHIBALD L. HOYNE, M. D.

CHICAGO

As the years pass we find an ever increasing interest in the subject of poliomyelitis. Intensive study is undoubtedly stimulated by public sympathy for those afflicted with the disease; it is also due in large measure to the unsolved problems connected with the infection.

Underwood, an English physician, directed attention to infantile paralysis as early as 1774. Because of the age at which children were attacked most frequently he associated the paralysis with teething. Later Heine, a German orthopedic surgeon, made valuable contributions to our knowledge when in 1840 he called attention to the existence of symptoms that preceded the paralysis. Medin in 1890 published his pathological findings. Due to the work of these investigators poliomyelitis was often referred to as Heine-Medin's disease. It was not, however, until after Wickman's study in 1905 that a wide range of investigative work was undertaken. Wickman not only established the contagiousness of the disease and that it could be transmitted by human carriers but he also recognized that poliomyelitis could occur without paralysis. These observations were real advances in the comparatively limited knowledge of the epidemiology and symptomatology that had previously existed. The experimental studies of Landsteiner and Popper, Flexner and Lewis and many others in more recent years are well known. Still we are not acquainted with the precise facts that are necessary for control of the disease which we believe is due to a virus.

Originally infantile paralysis was the term used to describe the malady. Today we are inclined to regard any paralysis that occurs as a complication of an acute systemic infection. This viewpoint has an important bearing on the disease from both an epidemiological and a therapeutic standpoint. If all poliomyelitis patients do not have paralysis how can we justify the use of such an expression as the "pre-paralytic stage" when discussing a patient who has no paralysis? It seems more correct to speak of non-paralytic and paralytic cases. This limitation of terms becomes particularly evident when we consider that some have estimated as high as 80% of all poliomyelitis patients have no paralysis. If this is true there must be many convalescent carriers who are never detected and consequently spread the infection unmolested.

Age has always been an important factor in those attacked. In this respect there is a striking similarity to measles. Both diseases are particularly common in the same age groups. Poliomyelitis like measles is unusual before six months. Both diseases are infrequent among adults in urban populations. In large cities few adults contract measles because nearly all have gained immunity by an attack during childhood. Is the same explanation applicable to poliomyelitis? Is it not possible that most of the population in a large city has had poliomyelitis without paralysis during the early years of life. In small towns and country districts there is a larger percentage of adults who have escaped measles in childhood than is to be found in the cities. A higher percentage of adults is usually attacked by poliomyelitis in country districts because they lack immunity from infection in childhood.

In the 1916 Chicago outbreak of poliomyelitis about 86% of the patients were 5 years of age or less. During the year 1936 there was considerable difference in regard to the age factor as shown in the following table:

Age Groups for 139 Hospital Patients

Under 1 Yr. —4	6-10 —50	16 + —14
1-5 —54	11-15 —17	

Here it may be seen that only 41.7% of the patients were 5 years of age and less, and that 22.3% were more than 10 years of age.

Distribution between the sexes in our cases shows there were 75 males and 64 females. This ratio is customary.

Various characteristics have been described as being prominent among those who are susceptible to poliomyelitis. The colored race seems to be relatively exempt from the disease and this impression is supported by the small number (4) included in our 139 patients. Some years ago I referred to the fact that blondes appeared to be much more frequent victims than brunettes.[1] A short time later it was reported from New York

From the Municipal Contagious Disease Hospital, Chicago Board of Health.

Read before the Section on Public Health and Hygiene, Illinois State Medical Society, Peoria, May 19, 1937.

that the disease was very prevalent among the Italians of that city. Others have stated that children with widely spaced upper incisors seemed especially prone to contract the disease. The value of such observations is of course doubtful. However, it is a fact that most poliomyelitis patients are exceptionally well nourished, robust children.

The influence of season on the prevalence of poliomyelitis is more evident than ordinarily manifest in the case of other contagious diseases. Epidemics are most often encountered during hot dry weather. July, August and September are the months commonly associated with poliomyelitis though sometimes the peak is not reached until October. In 1936 our hospital patients were distributed as follows: June 2, July 3, August 9, September 61, October 55, November 8, and December 1.

Why a contagious disease should thrive in the summer months when the opportunities for close contact are less than in the winter is difficult to understand. However, insects which might be considered with such an occurrence seem to have been excluded as vectors. But those who believe the infection enters by way of the digestive tract point out that the summer months would be a favorable time for an epidemic. Diarrrheal diseases prevail in the summer and may be occasioned by spoiled foods. Therefore it is contended if poliomyelitis enters by way of the gastrointestinal tract the disease should be most common in the warm seasons. Changes that have been noted in Peyer's patches and the lymphatic system tend to uphold the gastrointestinal theory of infection. Strauss held this view in 1907; later Burrows did likewise and more recently Toomey has advanced a similar opinion. Nevertheless Brodie[2] has stated that the idea of the disease beginning as a general systemic invasion is erroneous.

In our series 18 patients were recorded as having no paralysis. This figure represents more than 12% of the total cases. In 74 instances or 53.2% the paralysis involved one or both lower extremities and one upper extremity. There were ten patients who had paralysis of both upper and both lower extremities. The proportion in which the lower extremities are affected is a reason sometimes given for believing the primary seat of infection is located in the intestinal tract. Sixteen patients were classified as bulbar cases.

When poliomyelitis is prevalent there is always the greatest concern for those who may be susceptible. Appeals are constantly made to the family physician for advice on the subject. Anything offered to the public as a preventive is seized upon with avidity. Twenty years ago we were told not to use antiseptics as nasal douches or sprays because by so doing we removed any protective properties that might be present in the nasal secretions. Today we are offered first a picric acid preparation and more recently a zinc sulphate solution to coat the nasal mucosa and thus prevent poliomyelitic infection. In the meantime there are those who claim the nose is not the portal of entry for the disease; that infection takes place by way of the digestive tract. This theory has been alluded to previously. Thus far the various proposals for prophylaxis are of extremely uncertain value. There is nothing which has been demonstrated to be of unquestioned efficiency.

Neither Kolmer's attenuated virus nor Brodie's vaccine has been given much approval for the purpose of establishing active immunity. This is one of the problems still to be solved. Use of the attenuated virus has been regarded by some as not without danger. The vaccine is said to lack the protective qualities originally claimed for it.

Passive immunization may be attempted with the use of human convalescent poliomyelitis serum. If this seurm is of any real value its worth should be most apparent when given for the purpose of prevention. However, the general impression seems to be that convalescent poliomyelitis serum does not confer a passive immunity. Some even go so far as to state that patients receiving it have developed unusually severe attacks of poliomyelitis. If we believe the foregoing expressions of opinion we must conclude that there is no satisfactory remedy that can be used for the prevention of poliomyelitis. Normal adult blood has also been used and is said to contain protective properties which often equal those found in convalescent serum.

When a diagnosis of poliomyelitis is made isolation of the patient should be immediate. Only in the midst of an epidemic when every illness is suspected of being the beginning of poliomyelitis is it likely that the disease will be diagnosed before paralysis appears. Nevertheless, some place great emphasis on the importance of ad-

ministering convalescent serum during the "preparalytic stage." If serum is given when there is no paralysis present and if paralysis does not develop after the injection of serum it is usually claimed that the treatment prevented paralysis. But since there may be, as we have said before, as high as 80% of poliomyelitis patients who do not have paralysis how can any one maintain that he has warded off a catastrophe when there were less than 20 chances out of a hundred that it would happen. Moreover it has been shown that convalescent serum even when given in large doses of 200 to 300 cc. during the preparalytic stage in monkeys does not prevent paralysis.

Zinsser and Jones state "there is no statistical proof that the serum has any value after the cells of the nervous system are involved." They also assert the involvement occurs so early in the course of the disease that "it is impossible to administer serume in time to do good."

With such thoughts in mind we are often perplexed regarding what action to take when considering serum treatment. But notwithstanding a feeling of uncertainty in respect to the value of convalescent poliomyelitis serum I believe it advisable to use it until something better is provided. When administering serum it should be given intravenously—never intraspinally. By the latter route it may do actual harm by irritating and increasing edema of the cord. When serum is used it should, of course, be injected as early as possible in the course of the disease.

In our series 28.7 per cent. of the patients received convalescent poliomyelitis serum. The dosage ranged from 60 cc. to 400 cc. and was given intravenously. Very few of these patients were treated with less than 100 cc. In some instances marked response to this form of therapy seemed manifest as indicated by a remission of temperature and an apparent improvement in the general condition. Nevertheless, I have seen similar changes for the better take place when no serum was available for the patient.

There is probably nothing more necessary in the treatment of poliomyelitis than absolute rest in bed. The average patient is nearly always better by the end of a week than he was when the diagnosis was made. In most instances whatever paralysis the patient is going to have that extent of paralysis will be present when the physician is first called. Patients with a progressive type of paralysis are the exception. After the first week of the acute stage the tendency is generally toward improvement. How much improvement will occur can only be told with the lapse of time.

Next in importance to complete rest for the patient is the prevention of deformities. Appropriate splints should be used early and the services of an orthopedic surgeon secured.

The after-care of the patient should be directed entirely by the orthopedic surgeon assisted by nurses trained in this particular field of work. The Visiting Nurse Association of Chicago with its specially trained nurses is an outstanding example of the great good that can be accomplished in the after-care of poliomyelitis for those who need and are entitled to such assistance.

In the Los Angeles epidemic[3] of 1930 the number of complete recoveries was given as 60.9 per cent. and the death rate 3.16 per cent. Both of these figures compare very favorably with many that have been reported. In our hospital series of 139 there were 13 deaths or a fatality rate of 9.2 per cent. This figure seems high but in any epidemic the mortality is dependent on the type of the disease that prevails. In the New York epidemic of 1931 the mortality was 12.2 per cent. Also it is a significant fact that of the untreated cases studied in the early "preparalytic" stages the mortality rate was less than 1 per cent. according to Park. Of our 13 fatal cases 11 were bulbar. Recovery took place in five patients of this type. Eleven of the fatal cases were males and 2 females. Of the 13 deaths 11 occurred within 48 hours of admission to the hospital.

On the basis of population, mortality for poliomyelitis is nearly always exceeded by such common contagious diseases as diphtheria, scarlet fever, whooping cough and even epidemic meningitis which does not as a rule occur with any greater frequency than poliomyelitis. In our own state last year, according to the Illinois State Department of Health the foregoing situation was shown to be true.

Comment.—There is no reliable method for the prevention of poliomyelitis. There is no form of serum whose efficiency has been proved in treating the patient during the acute stage.

Hospitalization is advisable for purposes of isolation and treatment.

Rest is imperative during the acute stage and is often essential for prolonged periods.

Appropriate means for the prevention of deformities is of the utmost importance in every case no matter how slight the paralysis may seem to be.

After-care is often of as great consequence to the patient as is early diagnosis.

The services of an orthopedic surgeon should be available for every poliomyelitic patient.

In the past 20 years scientific investigation has produced nothing of practical value in the prevention or treatment of poliomyelitis.

May 19, 1937.

REFERENCES

1. Hoyne, A. L.: Poliomyelitis, With Some Observations on Thirty Cases. J. A. M. A., 67: 666, 1916.

2. Brodie, M.: The Role of Convalescent Serum in Preparalytic Poliomyelitis. J. Immunology, 28: 353, 1935.

3. Meals, R. A.; Hauser, V. F. and Bower, A. G.: Poliomyelitis—The Los Angeles Epidemic of 1934; J. Cal. and West. Med., 43: 123 and 215, 1935.

DISCUSSION

Dr. J. J. McShane, Springfield: I congratulate Doctor Hoyne on his poliomyelitis paper. I am sure we have all enjoyed the paper; however, there are a few points that I would like to discuss. Since Doctor Hoyne has only given figures on the occurrence of poliomyelitis in Chicago, I thought it would be of interest to give not only state totals but also figures relating to Chicago and downstate. It is of interest to know that since 1916 we have had five large epidemics of poliomyelitis, the first occurring in 1917 in which there were 853 cases, 551 in Chicago and 302 downstate. The next epidemic occurred in 1921, showing 671 cases reported for the state, 135 Chicago and 536 for downstate. In 1927 480 cases were reported for the state, 148 for Chicago and 332 for downstate. Then in 1931 which was the next largest year following the 1917 epidemic, 170 cases were reported for Chicago and 530 for downstate, totaling 700 for the state. In 1936, our next epidemic, 689 cases were reported, 241 for Chicago and 448 downstate.

You will note from the above figures, that the poliomyelitis epidemic occurred every five years since 1917 and as stated by Doctor Hoyne, many more cases since 1917 occurred downstate than in Chicago with the exception of 1917.

POLIOMYELITIS

Year	State	Chicago	Downstate	Fatality Rate
1917	853	551	302	27.6%
1921	671	135	536	22.2%
1927	480	148	332	21.4%
1931	700	170	530	15. %
1936	689	241	448	10.1%

It might also be of interest to note the age groupings of cases during the past year of 1936 and also the paralysis that was noted among the cases reported:

OUTSIDE OF CHICAGO
CHICAGO

		AGE GROUPINGS		AGE GROUPINGS	
Male:	261				
Female:	190	Under one year	11	Under one year	8
		1 year	20	1- 4 years	74
White:	448	2 years	34	5- 9 years	89
Black:	3	3 years	34	10-14 years	42
		4 years	31	15-19 years	14
Male:	135	5- 9 years	161	20 29 years	9
Female:	106	10-15 years	91	30-39 years	6
		15-19 years	38	40-49 years	1
White:	233	20-24 years	10		
Black:	8	25-34 years	15		
		35-44 years	5		
		45-54 years	1		

For the past two years the state furnished convalescence serum to physicians who desired the same for the non-paralytic cases. Out of 350 persons attendng the clinics, 323 were bled and 27, for special reasons, were not.

The number of cubic centimeteres of blood collected was 98,995 and the number of cubic centimetres of serum recovered was 37,995.

Analysis of the poliomyelitis cases in 1936 which were followed up were as follows:

POLIOMYELITIS REPORTED: 1936

MONTH	TOTAL CASES
January	4
February	1
March	5
April	1
May	2
June	13
July	28
August	60
September	240
October	255
November	70
December	13
Total	692

SITE OF PARALYSIS IN POLIOMYELITIS CASES REPORTED: 1936

Both legs	73	Both arms	11
Left leg	48	Neck	15
Right leg	51	(includes 1 right arm, 3 right leg and 1 left arm)	
Left arm	28		
Both legs and arms	26	Left arm and right leg	2
Right arm	21	Right arm and both legs	2
Right leg and arm	11	Right arm and left leg	4
Left leg and arm	11	Left foot	6
Throat	9	Face	6
Throat and other	3	Respiratory	1
(includes 1 both arms, 1 both legs and 1 left arm)		Miscellaneous	7

Dr. Archibald L. Hoyne, Chicago: Dr. McShane's figures agree very closely with what I have said regarding the subject of convalescent serum. I attempted to make the point, but perhaps didn't emphasize it sufficiently, that it seems absolutely wrong and bad from many standpoints to lead the public to believe that convalescent poliomyelitis serum will prevent the development of paralysis if administered immediately after the first symptoms of the disease. Frequently such an opinion is held.

When a physician is called to see a child suffering from a slight headache and perhaps a gastro-intestinal attack he is not likely to consider the possibility

of poliomyelitis if there are no known cases of this disease in the community. However, he may return two or three days later and find his patient has a paralyzed extremity. Under such circumstances the patient's family is sometimes incensed and feel they are justified in considering some legal action against their medical advisor for his failure to adopt the proper means for preventing the occurrence of paralysis. On several occasions I have known of parents who indicated their loss of confidence in the family physician because he did not administer convalescent serum prior to the development of paralysis.

Brode and several others have shown very clearly in experimental work that even within five minutes after an animal is injected with poliomyelitis virus large doses of convalescent poliomyelitis serum do not prevent the occurrence of paralysis. Moreover if we admit that all poliomyelitis patients do not have paralysis then we must also grant that there is not sufficient evidence to prove that convalescent serum will prevent paralysis after symptoms of the disease appear. Furthermore if it is possible to have a systemic phase of the disease without any involvement of the central nervous system then a lumbar puncture and an examination of the spinal fluid under such circumstances would disclose no abnormality and consequently be of no value in establishing a diagnosis.

Although convalescent poliomyelitis serum has been used much more extensively than it was twenty years ago, some of the views concerning its value are not altogether different. In 1917 Amoss and Chesney at the Rockefeller Institute treated a group of 26 patients with convalescent polio serum. They pointed out that to obtain the best results serum should be given prior to the development of paralysis. As I recall their report there were two instances among their group of patients in which the diagnosis was made by spinal fluid examination in the so-called pre-paralytic stage. Strange to relate these two patients who were given convalescent serum before the appearance of paralysis not only developed paralysis but had respiratory cases and were the only two in the group of twenty-six that died. Nevertheless the conclusion of Amoss and Chesney was at that time that convalescent poliomyelitis serum was the only therapeutic agent that offered any hope.

It seems to me that every poliomyelitis patient should receive convalescent serum since we have nothing better to offer at the present time, yet it does not seem proper to promise great efficiency for it nor to claim that any improvement a patient makes is due solely to the serum treatment.

Mortality figures in poliomyelitis epidemics may mean very little as indicators of successful forms of treatment. High death rates usualy mean that the percentage of respiratory and bulbar types is unusually high. When discussing the value of convalescent serum such types cannot be excluded from mortality figures on the theory that no claim is made that convalescent serum will save them. Nor is one justified when discussing any form of treatment for poliomyelitis to assert that certain patients died because there was not sufficient time to treat them. Such reasoning in discussing the value of any therapeutic agent is far from convincing. If all deaths are excluded from any series of patients regardless of the basis on which the action is taken the fatality rate will be nothing. Notwithstanding such thoughts as have been expressed it seems to me we should afford poliomyelitis patients any possible benefits which may be derived from the administration of convalescent serum.

Dr. Paul H. Harmon, Chicago: I would like to add some information to the scientific facts that Dr. Hoyne did not bring out. Schultz and Gebhardt in California found, if serum was given at the same time or shortly after inoculation with the virus into monkeys, there was a lessened mortality and a lessened incidence of paralysis in those protected with serum in comparison to untreated controls. In the protected group of monkeys there were 30% survivals as compared to only 7% in those that had not had serum. Then, too, the treatment of human beings is entirely different from the treatment or protection of monkeys because of the fact that the disease is milder in man. In monkeys inoculated with passage virus the incidence of paralysis and death is nearly 80 or 85%, whereas in man even in untreated cases the mortality rate is very low (5 to 10%). Dr. Levinson has had an extensive experience with the treatment of the human disease. I think he would like to discuss the treatment of human cases with convalescent serum. We have performed some experiments which I would like to present.

On some of Dr. Hoyne's cases this past summer we took rectal and nasal washings in order to test these for virus. Of twenty such patients there were five from whom we were able to recover the virus from the gastrointestinal tract. This evidence, taken with the lack of changes in olfactory bulbs from fatal cases of this diseases, led us to believe at least in the 1936 epidemic in Chicago that the disease probably was a gastrointestinal infection.

There is a reason why serum is not of great value in preventing the disease: the presence of neutralizing substances against the virus in the blood prior to onset of paralysis. If one is so fortunate as to see a preparalytic patient and obtain blood from him before serum is given, one finds that at least 50 to 60% of such patients have virus-neutralizing substances in the blood before paralysis sets in.

Debatable as is the question of treating the acute disease with serum, the orthopedic treatment of supporting neck and paralyzed extremities is easily shown to be of value. Support by splints or other apparatus should be applied as soon as weakness is detected.

Dr. Sidney O. Levinson, Chicago: Although the time hardly permits further discussion, I feel that this very serious indictment of the value of convalescent serum therapy requires a reply.

There has been much recent quibbling over the term "preparalytic." The important word is "poli-

omyelitis." The adjective only serves to classify a case acording to the clinical stage. The term "non-paralytic" cannot be employed during the acute stage; it may only be used when the disease has subsided and the patient has made a complete recovery.

Your attention has been called to the 20% incidence of paralysis when no serum treatment was used. In a report by Harmon there was an average of 28.5% paralysis developing in 531 untreated cases collected from the literature. Please keep in mind this figure of 28.5% paralysis rate in untreated cases.

The essayist reported today that 16 preparalytic patients were treated with convalescent serum at the Municipal Contagious Disease Hospital in 1936. The outcome of these cases is worthy of note. All 16 made complete recoveries without residual weakness. Such excellent results only reflect a more general experience.

I want to call your attention to two reports in the recent literature. Cowie and others in Detroit used large doses of serum or transfussions in 85 consecutive preparalytic cases with complete recovery. Jensen in the Danish epidemic used large and repeated doses of serum with a resulting low total incidence of paralysis. Our work in the Chicago area in the last six years, treating more than two hundred consecutive preparalytic cases, shows an incidence of paralysis of less than 2%. Compare these three reports of serum treated results with the previously quoted 28.5% paralysis rate in non serum treated cases.

I can appreciate the stand Dr. Hoyne adopts that the value of convalescent serum has not been proven. But is there justification for the statement that serum therapy is worthless and even harmful? A careful alternate case study has never been reported. I should like to see Dr. Hoyne go further and make such an alternate case study. This would go far to settle the dispute. Those of us, who have secured excellent clinical results from serum therapy, cannot give up the only measure available at the present time.

Dr. Archibald L. Hoyne, Chicago: Dr. Levinson seems to attribute to me a statement that does not appear in my paper; nor have you heard me say at any point in my comments that "serum therapy is worthless and even harmful."

ADVICE TO PROSPECTIVE MOTHERS

"Prospective mothers are like athletes in training for an important event. They should live according to the rules to assure a well baby and a healthy mother. Approved diet contains nourishment for the mother and materials for building the body of the baby. Starches, fats, vitamins and minerals, with plenty of milk, leafy vegetables, whole wheat bread and restricted amounts of meat are recommendations often made. Women who are to be properly prepared for motherhood should have the care and advice of a physician throughout the period, and for several weeks after the baby is born."

SURGICAL MANAGEMENT OF ACUTE APPENDICITIS AND ITS COMPLICATIONS IN CHILDREN

Edwin M. Miller, M. D.
Edgar C. Turner, M. D.
CHICAGO

Probaby no subject in the field of Surgery has been more widely discussed during the past fifty years than that of the treatment of appendicitis and its complications. During the past few years considerable progress has been made due largely to very careful studies of large series of cases, especially those from the university clinics, notably those of the Mid-Western states.

In an effort to clarify the indications for operative interference Doctor Turner and I have tried, during the past three years, to make a careful clinical study of those cases of acute appendicitis and its complications which have been cared for at the Children's Ward of the Cook County Hospital. We submit here the results of our investigation for your consideration.

It has been our observation for a number of years that these cases fall naturally into three clinical groups which, from their histories and physical findings, are as a rule readily distinguishable one from another.

Group 1: This group comprises all those acute cases which, from their histories and physical findings, are evidently those of acute appendicitis before the stage of perforation.

As to the proper treatment of this group there is practically no difference of opinion at the present time. All of these in our series have been subjected to immediate operation, except those in which the infection was very clearly in the subsiding stage when they entered the hospital. There has been no mortality in this group.

Group 2: This group represents those cases which, when first seen by the physician or surgeon, both from the history of longer duration and the physical finding of a localized palpable inflammatory mass are quite clearly cases of perforation against which there has been set up from the start an adequate defensive mechanism. This inflammatory mass, or so-called "appendical abscess," may vary greatly in size—being at times as large as a small orange—and may occupy any

Read before Joint Session of Medicine, Surgery & Radiology of the Illinois State Medical Society, Peoria, May 19, 1937.

position in the right side of the abdomen. Not infrequently it is felt even in the left lower quadrant. At times it is recognizable wide in the flank, at other times deep in the pelvis, and can often be made out only by rectal or bimanual examination with the patient well relaxed.

It has been our feeling that this type of case had best be handled very conservatively, and our experience in this study amply justifies this point, because in most instances (fully ninety per cent. of cases) careful observation of this type of patient over a period of days with conservative management will show a gradual improvement—a gradual reduction in fever and leukocyte count, a diminution in size of the palpable inflammatory mass, and at the end of ten days to four or five weeks the complete disappearance of the abnormal physical findings. This type of patient is routinely advised to return for appendectomy during a quiet period three or four months later when the appendix may be removed without fear of mortality no matter how densely imbedded in adhesions it may be found.

Only a few cases in this second group take the opposite course, in which the clinical symptoms become progressively more marked and the size of the mass progressively increases to the stage where it apparently tries to point either anteriory, laterally, or deeper in the pelvis. Under these conditions it is apparent that an appendical abscess of considerable size is present and simple drainage through a small incision, through what amounts practically to an extraperitoneal approach, may be safely accomplished with almost no mortality rate.

Group 3: In contradistinction to the cases in Groups 1 and 2, the cases falling in Group 3 represent those of acute perforation against which, even from the start, there has not been an adequate defense mechanism. Pathologically speaking, they are as a rule of the obstruction type of appendicitis and the perforation is grossly

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ACUTE APPENDICITIS WITHOUT PERFORATION
1934--1935--1936

TOTAL NUMBER OF CASES 329
MORTALITY 0

DURATION OF SYMPTOMS

24 Hours of Less ---------- 155

24 Hours to 48 Hours ---------- 104

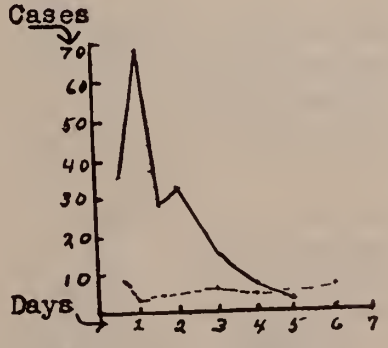
48 Hours or More ---------- 76

History of Catharsis in ---------- 77

TREATMENT

CONSERVATIVE ----- 33

IMMEDIATE OPERATION--- 296



DURATION OF SYMPTOMS (1935-1936)
------- CONSERVATIVE
——— IMMEDIATE OPERATION

of considerable size. This condition may be likened to a "blow-out" in an automobile tire in contradistinction to a slow leak as represented by a case in Group 2. Very often streptococcus is the predominant organism and very often also the patient is one whose resistance to infection is very obviously quite low. The findings on abdominal examination are generalized rather than localized. The acute general tenderness and rigidity speak for a rapidly spreading more or less general peritonitis.

The treatment in this group of cases has been for a long time a subject of wide controversy among reliable surgeons. Many of our best men feel that under these conditions the chances of recovery are greater if the patient is left alone, with the use of Fowler's position, morphine, restricted intake by mouth and whatever other conservative measures seem to be indicated at the time.

On the other hand, equally good men take exactly the opposite stand. In this point of view we most enthusiastically concur, because the evidence here presented from our experience is unmistakable. We have learned that no matter what the interval of time since the apparent onset of perforation, surgical removal of the source of the infection combined with adequate drainage, where drainage seems to be necessary, is the one most effective procedure in avoiding a fatal result. It is our opinion also that in these severe cases of perforation with spreading peritonitis the resistance of the peritoneum becomes impaired in proportion to the degree to which the blood supply to the bowel is interfered with by the distention of the bowel with gas, and that the use of the duodenal suction tube or the introduction of a catheter through the cecum or through the stump of the appendix are measures which cannot fail to contribute favorably toward a successful result.

As to the matter of drainage itself, we are not

1934 - 1935 - 1936

ACUTE APPENDICITIS WITH PERFORATION AND LOCALIZED PALPABLE MASS

Total Number of Cases 131
Mortality 3.8%

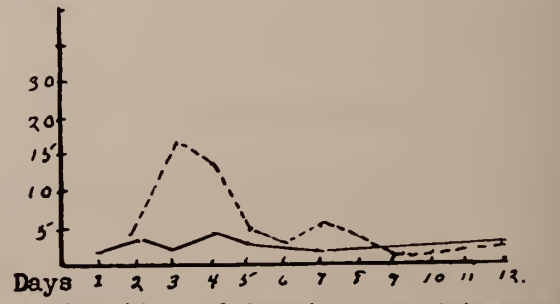
LOCATION OF PALPABLE MASS

Most often in R.L.Q. Frequently directly above symphysis, or in the true pelvis (felt by rectal examination only). Occasionally in L.L.Q. or in the right costo vertebral angle.

TREATMENT

Conservative ----- 116
Recoveries ---- 112
Deaths ------- 4
Mortality ----- 3.4%

Operative ------- 15
Recoveries ---- 14
Deaths ------- 1
Mortality ----- 6.6%
Drainage
Of Abscess Cavity --- 9
Into Peritoneum Only- 2
One Death had Appendectomy and Drainage.



prepared at present to make any definite statements because our observations on this point are insufficient. We believe, as most other surgeons do, that it is impossible to drain the infected peritoneal cavity completely by introducing tubes through an incision or through multiple incisions. Yet we continue to use drainage, always employing the soft cigarette type and always placing them as near the source of the perforation as possible. Especially do we feel that they are of value when the perforation is retrocecal in position; in other words extraperitoneal, because we feel that it may not infrequently help prevent an ascending infection along the posterior wall which might lead to a subphrenic abscess.

Conclusions. We feel that the observations here presented warrant the following conclusions:

1. Immediate appendectomy is indicated in all cases of acute appendicitis before perforation, unless the infection is very clearly subsiding.

2. When the clinical evidence shows that the appendix has ruptured and the infection is definitely localized as evidenced by a palpable inflammatory mass, a conservative course should be followed in the vast majority of cases. Only a very few will demand surgical drainage.

3. In all cases in which a spreading peritonitis is present without evidence of localization, it is a wise plan to remove the source of the infection, institute proper surgical drainage, and use whatever means available to deminish the amount of distention of the bowel with gas.

CASES OF ACUTE APPENDICITIS AND COMPLICATIONS

Cook County Hospital, Ward 46
1934—1935—1936

	No. Cases	Mortality
Group 1—Acute Appendicitis without Perforation	329	0
Group 2—Acute Appendicitis with Perforation with local Palpable Mass	131	3.8%
Group 3—Acute Appendicitis with Perforation without local Palpable Mass	163	22.7%
Total Number of Cases	613	
Average Mortality		6.8%

1934 - 1935 - 1936

ACUTE APPENDICITIS WITH PERFORATION AND PERITONITIS

(Without local palpable mass)

Total Number of Cases 163
Mortality 22.7%

Duration of Symptoms

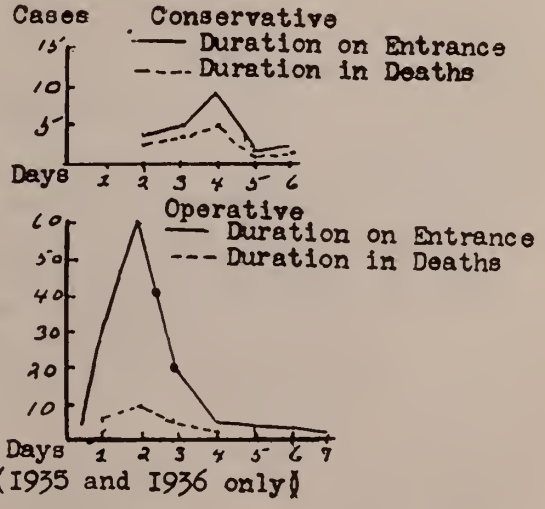
24 Hours or less	31
24 Hours to 48 Hours	65
48 Hours or More	68

TREATMENT

CONSERVATIVE		21
	Recoveries	5
	Deaths	16
	Mortality Rate	76.1%
OPERATIVE		142
	Recoveries	121
	Deaths	21
	Mortality Rate	14.7%

Drainage in Operative Cases

None	5
To peritoneum	4
In Peritoneum	4



(1935 and 1936 only)

SUMMARY OF CASES OF ACUTE APPENDICITIS

Cook County Hospital, Ward 46

	GROUP 1				Group 2				Group 3			
	1934	1935	1936	Total	1934	1935	1936	Total	1934	1935	1936	Total
NUMBER OF CASES	116	104	109	329	59	32	40	131	67	57	39	163
OPERATIVE TREATMENT	111	86	99	296	5	6	4	15	54	55	33	142
Recoveries	111	86	99	296	4	6	4	14	46	46	29	121
Deaths	0	0	0	0	1	0	0	1	8	9	4	21
Mortality	0	0	0	0	20%	0	0	6.6%	14%	16%	12%	14%
CONSERVATIVE TREATMENT	5	18	10	33	54	26	36	116	13	2	6	21
Recoveries	5	18	10	33	50	26	36	112	5	0	0	5
Deaths	0	0	0	0	4	0	0	4	8	2	6	16
Mortality	0	0	0	0	7%	0	0	3%	61%	100%	100%	76%

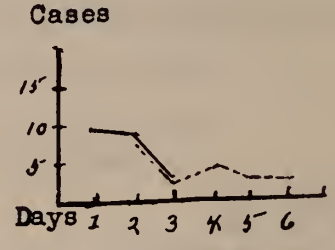
DEATHS FOLLOWING ACUTE APPENDICITIS and Its Complications

Cook County Hospital Ward 46
1934 - 1935 -1936

Total Number of Deaths 42 In a series of 613 cases (6.8%)

Duration of Symptoms

24 Hours or Less ------ 5
24 Hours to 48 Hours ---12
48 Hours or More ------24



Duration of Symptoms on Admission
---- Conservative
—— Operative

TREATMENT

Conservative ------- 19

Operative ------ 22

Proceedure
Drainage only-- 2
Appendectomy -- 20
No Drains ---- 9
Drains to Peritoneum only --- 8
Drains in Peritoneal cavity - 5

Pathology

All cases showed evidence of Generalized Peritonitis.
In 5 cases it was secondary to a Localized Palpable Mass which ruptured spontaneously, 3 pelvic - 2 R.L.Q.
In 37 there was no evidence of localization.
1 Intestinal Obstruction (Enterostomy)
7 had Peritonitis and Broncho pneumonia
2 had thrombophlebitis and Lung Abscesses

MIRTHOLITIS

Driver: "I wasn't going forty miles an hour, nor thirty, nor even twenty."

Judge: "Here, steady now, or you'll be backing into something."

CLEAR ROAD AHEAD

Betty: "Do you have any green lip sticks?"

Drug Store Clerk: "Green lip sticks?"

Betty: "Yes, a railroad man is going to call on me tonight."

THE DIFFICULTIES IN DIAGNOSIS

DARWIN KIRBY, M. D.
CHAMPAIGN, ILL.

To talk to you about diagnosis of appendicitis is like "carrying coals to New Castle." I have often said that I questioned if we ever profit from the mistakes of others; if I am right then my part in this symposium might as well have been left out. If on the other hand, some of my experiences bring out some things of interest, I will feel that I may have added a little to what I consider often a baffling problem.

The urinary tract is a villain and the pyelitis or calculus may cause an inoffensive appendix to be hailed to the seat of judgment before the pathologist, whose report "no pathology found" is to say the least displeasing to the conscientious surgeon. In fact, I have become just a little tired of continually hearing urologists tell us of our making so many mistakes along this line. Perhaps they too have a little glass in their house. Microscopic urinary examination should always be made, but certainly a few pus cells, or in a woman red cells unless a catherized specimen, does not say hands off. They do indicate an urgent need for a very painstaking examination, but if in doubt the appendix should come out.

What I am trying to say is that clinical evidence must always outweigh laboratory evidence. This naturally leads up to blood counts. Many a patient languishes in the prison of doubt while the technician helps the surgeon to make up or unmake his mind about the advisability of operating. It is no exaggeration to say that too often much valuable time is lost and that after the third count several hours following the attack the surgeon is no wiser than at first. I am not discouraging blood counts. I believe in them, especially the Schilling count and the shift to the left. This I believe is more important than the total number of white blood cells and polymorphonuclears. I operated on two cases recently where the divergence of leukocytes was extreme. One a young girl with severe pain in lower right abdomen, temperature 101, localized tenderness, slight rigidity, chest and throat negative, urine negative, WBC 37,000. A rather large innocent looking appendix was removed. The other, also in a woman about thirty with similar findings except the onset had been quite stormy and there was marked rigidity and tenderness. Vaginal examination in this case negative as was the urine, WBC 2,900, so low that before operating had another taken, this time 4,100. Bloody fluid found when the abdomen was opened, normal appendix removed. Exploration revealed an apoplexy of the right ovary where a graafian follicle had ruptured. Both cases I am sure would have gotten along without operation. In the last case, however, there were fibroids so a hysterectomy was done.

It seems that almost every known medical and surgical condition has some time been confused with appendicitis. Following is a partial list of some that have been mistaken and reported. Dietl's crisis, psoas abscess, early typhoid, luetic crisis, tetanus, abortion, influenzal myalgia, tonsion of the omentum, mesenteric lymphadenitis, amebic dpsentery, intestinal allergy, coltis, tonsillitis and scarlet fever, diverticulitis, malaria, purpura, acute pancreatitis, perforated duodenal and gastric ulcer, internal hernia, ectopic pregnancy, endocarditis and pericarditis, rheumatic fever, urethritis and poleomyelitis. As mentioned above, this only covers a few of the multitude of conditions which have been diagnosed as appendicitis. What is the explanation? The only answer, I think, is gastrointestinal symptoms with pain and perhaps some tenderness. I wish some one would explain why all of the referred pain goes to the right lower quadrant rather than the left. I sometimes suspect it is because we push harder on that side. That not careful enough examination is made in many cases is illustrated by what a prominent surgeon said a few years ago, that he was kept busy saying no.

I have tried to school myself to think of everything that can cause abdominal pain when examining a case which presents gastrointestinal symptoms. This, while no doubt praiseworthy, has not helped me much in the diagnosis of appendicitis, but has in a few instances kept me from doing an unnecessary operation. I was called to see a young lad sixteen years old who gave no history except sore throat and vomiting, temperature 102, pulse 110, moderate leukocytosis, urine negative chemically and microscopically. There was no eruption to explain a scarlet and the throat was not typical and while red, did

Read before Joint Session of Sections on Medicine, Surgery & Radiology, Illinois State Medical Society, Peoria, May 19, 1937.

not seem sufficiently inflamed to explain the symptoms. Examination was essentially negative and I went to considerabe pains in making a rather complete physical examination because the lad was evidently quite ill and neither symptoms nor findings were very helpful. This was about 1 P. M., about 6 P. M. the nurse phoned me that the patient was having severe abdominal pain. I hurried to the hospital and the first thing I did was to feel his abdomen, this was quite rigid.

I reviewed the history, no help there. Suspecting the possibility of a referred pain I quizzed carefully about a cold, chills or cough, none. Nothing but a sore throat and I did not consider the throat findings sufficient. Another physical examination; the abdomen definitely rigid more so on the right side and tender on pressure which seemed more marked in the lower right quadrant. Was there anything in the abdomen on my first examination? Here is where I received some mental kicking. I remembered the left side because I had felt for a spleen, but I could not remember the right side. From now on I do. Whether to operate or not. Consultation was called, but no great light was shed and besides the responsibility was mine. Another careful examination, this time I felt rather sure that the breath sounds were not entering the lower right lobe as well as the left, but no dullness and no rales. Decided that I had a central pneumonia with referred pain and did not operate. Next day a few rales and later a typical lobar pneumonia.

My most distressing mistakes have been made where I have operated on cases which later proved to be renal conditions and in women and girls where the pathology proved to be in the pelvis. One can, however, learn too well from his own mistakes. I will not soon forget a woman about forty complaining of abdominal pain quite low down in the pelvis, slight nausea, but no vomiting. Temperature around 100. Examination showed tenderness in lower abdomen more marked on right side but very low. Vaginal examination disclosed tenderness in right adenexa, the urine was negative. I explained to the patient and family the difference between appendicitis and salpingitis and told them that we did not operate on acute pelvic infections. Rest in bed and hot applications ordered. Next day patient seemed better, no temperature and pain less. Same treatment continued. Further care discussed and possibility of operation later remarked about. This came earlier than expected. About one week from the time of my first visit, I received a hurry up call to this patient and found her in a serious condition with evidence of peritonitis. Rushed her to hospital and found a ruptured appendix which was mixed up with the right tube and ovary. All three were removed. Fortunately she made a good recovery.

Not so long after this I operated on a similar case where the trouble was definitely in the tube. I do not know just where this leaves me. The last case was relatively easy, definitely a chronic salpingitis and the pathology only being similar, that is all three organs were in one mass. Perhaps the mistake I made in the first case could have been avoided if I had taken more time in getting a careful history.

I believe we do not go into history taking as carefully as we should. The previous history of other attacks may help, and in the present complaint try to get the sequence of events, especially the time element. When did pain come on, before or after nausea or vomiting? With a little care we can sometimes find that the patient will help us if we will give them a chance and not rush too hurriedy to the physical examination. This is especially true in referred pain from the chest and kidneys. I often wonder how many appendices are removed where the underlying cause is an old leutic infection.

The difficulties in diagnosis are not always over when the abdomen is opened, which brings me to my pet pieve, the 1½ inch gridiron incision. How can you explore the stomach, gall bladder and pelvis through a finger opening. The best example of this I think is in the case of Dr. Charles Mayo who was operated on one day for appendicitis and the next day for gall bladder disease. Another thing, you cannot say that the appendix is guilty until caught and I have removed it from the region of the liver while the gall bladder played back and forth above. One time I found it attached to the urinary bladder. One time my assistant, a capable surgeon, and myself spent about an hour before I located it at the left side of Douglas' pouch with all of the ascending colon. There was no colon; nothing but small intestines in the right side. So the difficulties in diagnosis may persist after the abdomen is opened.

When all is said and done, all the history,

physical examinations and laboratory tests in, there is one thing that I place more confidence in than anything else, that is the localized tenderness. I will never forget a young woman who complained of abdominal distress, some nausea, but no vomiting, temperature and pulse normal, WBC normal, urine negative. On deep pressure some tenderness. Operation decided upon and a gangrenous retroceceal appendix removed. And in those cases which present difficulty, may I suggest that we never forget the rectal examination.

In reviewing the recent literature on this subject, I found what I consider the best cross section of opinion as expressed by Knut H. Giertz, Stockholm, who in speaking of appendicitis says: "When we urge early operation we imply early and exact diagnosis; without such we come to slaughter 'en masse' or to extirpation of appendices for reasons other than the patient's health and safety. However experienced we become in the course of years and however conscientious we are in our obseravtions, we have to face almost daily patients with acute abdominal pain on whom we are unable to make an exact diagnosis and in whom we are unable to exclude the possibility of appendicitis. In such cases, I perform on principle, an exploratory laparotomy over the appendiceal region."

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THE RADIOLOGICAL APPENDIX

George M. Landau, M. D., F. A. C. R.,
AND
Robert A. Arens, M. D., F. A. C. R.
CHICAGO

A survey of the literature reveals no scarcity of articles on this subject and we shall not endeavor to correlate all that has been written. The subject is not new and the following presentation is mainly that based on our own experience.

From the Roentgen Departments of the Chicago Memorial Hospital and Michael Heese Hospital, respectively.
Read before Joint Session of Medicine, Surgery & Radiology, Illinois State Medical Society, Peoria, May 19, 1937.

Since 1906, when Beclere first recorded the x-ray visualization of the appendix, much has been written with special reference to its significance. He was followed by George and Gerber, Pfahler, Cushway and Maier, Skinner, Pancoast, and a host of others to date, too numerous to mention. The subject, however, is still controversial, and therefore we take this occasion to restate the roentgenological aspect.

Meticulous care must be employed by the radiologist, in order to procure the best results from the examination. Two methods of approach are open. The first, and the method of choice, consists of giving barium orally and examining the entire gastrointestinal tract; and the second, by utilizing the barium enema. Both methods will be briefly discussed.

Oral method. The patient is given a barium meal, and its passage carefuly noted through the esophagus, stomach, duodenum, jejunum, ileum and colon, with interval examinations at two, four, six and eight hours, or until the barium has advanced well into the colon, and then at twenty-four and forty-eight hours. These time limits are arbitrarily stated, but may have to be varied considerably, depending on the type of barium meal used and the rate of progress of the head of the barium column through the intestinal tract, due to reflex irritability, gastritis, enteritis, etc. Obviously, considerable upper intestinal pathology may be discovered before the appendix is reached, and this may be of considerable import in the final analysis of the case. Coexisting pathology is rather common and in this regard we also recommend a thorough study of the gall bladder in practically all cases. Deviations from the foregoing routine naturally will result from the clinical aspect of the case, but in general we recommend a complete study of the gastrointestinal tract. It is, likewise, very important to observe the small intestines for evidence of regional ileitis, of which much has been written of late.

The normal appendix usually fills and empties with the cecum. The chronic appendix either fails to fill by virtue of occlusion, or to empty by virtue of its atonicity or chronic inflammation, while kinks or adhesions may inhibit the peristaltic action and produce stasis. Upon stasis, along with the fluoroscopic and radiologic evidence, rests in part the determination of its chronicity. An appendix which remains filled for

three or four days after the entire colon has been evacuated in our experience strongly suggests pathology. It is not so unusual to find barium retention in the appendix two to three weeks after examination. Various authors, however, maintain that the mere retention of barium in the appendix is no sign of its being pathological. We find no good physiologic reason for supporting this contention. Holzknecht, Case, Rieder, Cohn, George, Imbogen and many others, have written extensively on stagnation of bismuth in the appendix as a sign of chronic appendicitis. Carman and Case lay much stress on ileocecal stasis. Here, again, we cannot concur.

A nonfilling appendix does not necessarily signify obliteration of its lumen. It may fail to fill by virtue of obliteration, or because the appendix already contains fecal material which prevents the entrance of the contrast media. Repeated examinations at various time intervals may disclose, as at the forty-eight hour period, a visible appendix which may not have been revealed before. A nonfilling appendix, with a history of repeated attacks of lower right quadrant pain and associated clinical findings, and the Roentgen findings of cecal tenderness over the anatomical region of the base of the appendix, right rectus rigidity and fixation, are very significant.

In our perusal of a vast amount of literature on the subject of the chronic appendix from 1906 to the present day, all agree, with few exceptions, that the Roentgen signs of chronic appendicitis are fixation of the appendix, hypertonus, persistent barium stasis after the colon has emptied, and the point of maximum tenderness agreeing with the position of the appendix.

Opaque enema. This method, as a rule, is unsatisfactory, often resulting in reflex spasm and apparent irritability, due to an unphysiologic procedure, and, as is too often the case, the appendix fails to fill with contrast media. Palpation is difficult to evaluate, as the patient is usually uncomfortable and distressed and pain points are invariably unreliable. However, when, by this method, an appendix is visualized, we feel that it is potentially pathological. In any event, sufficient barium should be used to overcome the resistance of the ileocecal valve, in order to fill at least the terminal ileum. This is important to determine the presence or absence of terminal ileitis.

X-RAY FINDINGS

Visibility. The appendix may be visualized in over 80% of all cases, whether normal or pathological. Filling or nonfilling, per se, is in itself no positive proof of disturbed physiology or disturbed function. When visualized, consideration must be given to the size, shape and location, whether segmented, bulbular or kinked. A bulbular tip or a kinked appendix is strong presumptive evidence of disease, and at times it may even be possible to demonstrate fecoliths in the bulbar end. At other times only the base of the appendix may be visualized, due to an obliterated lumen beyond.

Position. The normal appendix has been described as occupying a position with the base of the appendix at McBurney's point. In our experience, and that of others, there is no constant position for the appendix. It naturally varies, in the normal, ranging from above the iliac crest to and in the true pelvis, depending upon physical type and posture. A pathological appendix, however, may be adherent in the gall bladder area, be fixed in the pelvis, may lie in the midline or to the right of the cecum and ascending colon, or retrocecal. The atypically located appendix must be demonstrated to remain in this position at all times, before one can logically consider that it is adherent. This is especially true when the appendix is shown to be fixed in the female pelvis. The cecum and appendix may be impacted in the pelvis and be impossible to manipulate. Before one can conclude that this fixation is positive, the patient must be examined at twenty-four and forty-eight hours, and with the opaque enema, in order to balloon out the ampulla recti, which often is sufficient to release the impacted appendix and cecum from their position in the pelvis so that the appendix then can be palpated freely up into the iliac fossa and its pathology evaluated. A mobile appendix, likewise, does not rule out periappendiceal adhesions, as the appendix may not be fixed to the peritoneum, but may be adherent to the cecum or terminal ileum, mesentery or omentum, all of which structures in themselves may be mobile, yet the appendix may be bound to these structures by adhesions.

Tenderness. Pain elicitated on palpation directly over the appendix must be accurately determined, as its clinical significance is of the greatest value. The appendix may be so mobile

that it may be impossible to impinge it between the palpating finger and the iliac fossa. It frequently occurs that pain over the appendix is in no way associated with McBurney's point. Mobility of the appendix often necessitates fixing of the appendix with the fingers of one hand, under fluoroscopic observation, while palpating with the other Pain on palpation over the appendix, which shifts with a change in position of the appendix, is of extreme importance. Palpation over the appendix, likewise, may produce—and frequently does—simultaneous pain elsewhere, such as in the gall bladder area, the epigastrium, the left iliac fossa, and around the navel. Right rectus rigidity is a clinical sign of great significance, and especially so when produced under the fluoroscope, with full knowledge that the palpating finger impinges the appendix and elicits the rigidity. An involuntary muscular defense reaction is also of extreme importance, especially when associated with palpation of the appendix when accurately located on the fluoroscopic screen. When the appendix lies in the pelvis, it is often extremely difficult, or impossible, to palpate satisfactorily for tenderness or fixation. In the female, palpation of the appendix in the pelvis must be cautiously differentiated from right adnexal pathology.

Colon. Secondary signs often associated with a pathological appendix are those of a tender cecum, ascending colon, and left iliac colon. To these must be added secondary colitis, colon spasm, ileocecal incompetency and ileal stasis. Pylorospasm may also be produced, however, we agree with Carman, who states, "The direct findings are usually so definite that we need not put much weight on indirect signs."

Discussion. We have purposely omitted a resumé of the clinical findings, since this portion of the symposium is to be taken up by the surgeon and the internist. Regardless of the satisfactory results in the Ioentgen conclusions per se, we wish to make ourselves clear that in no wise do we infer that the clinical findings shall be omitted. In fact, we always insist that these must be included in the final summation of the case. We would also like to stress that the entire gastrointestinal tract be examined in every case, rather than just the appendix. It is a well established fact that there are many coexisting abdominal lesions, such as ulcer, gall bladder and appendix. It has been shown that in only about 60% of all cases, in which pathological conditions occur in the abdomen, only one demonstrable lesion was present, while 40% showed combined lesions.

Johnson demonstrated that in 45 out of 100 cholecystectomies the appendix was involved, and Soper reports that 41.5% of 411 cases disclosed definite relationship to other infectious processes in the gastrointestinal tract. It has been further demonstrated that there is a direct anatomical physiologic relationship between the gall bladder, the duodenum and the appendix, so that an infectious process starting at any one of these points may involve the other two. We, therefore, strongly urge that complete gastrointestinal roentgenologic examinations be made in all cases in which there is a history of abdominal disease. Where the financial status of the patient is such that he cannot afford additional expense, the examination should be carried on by the radiologist, regardless, as it is to the best interest and welfare of the patient that this be done, in order to elicit the entire pathological picture. This and this only should satisfy the physician or surgeon.

From the standpoint of differential diagnosis, from the Roentgen viewpoint, all of the following possibilities must be borne in mind and each in turn eliminated:

Duodenal ulcer; duodenitis; gallstones; hydrops of the gall bladder; hydronephrosis of the right kidney; right kidney stone; right kidney ptosis; ptosis of the colon; diverticulosis; colitis; tuberculosis of the cecum; terminal or regional iletitis; carcinoma of the cecum; right female adnexal pathology in which pneumoperitoneum or uretero-tubography may be necessary; sacroiliac arthritis. In consequence of the differential points necessary to a diagnosis, one cannot refrain from again stressing the necessity of instituting a thorough, meticulous, painstaking x-ray investigation.

While statistical figures are boresome, it is worthy of note that Feldman, whose recent contribution to the literature on this subject likewise stresses what we have attempted herein, the necessity for thorough, competent x-ray examination, since in his series of 115 cases of so-called chronic appendicitis in which unsuccessful surgical results were obtained, revealed of the more common findings in three series of cases the fol-

lowing: gastric and duodenal ulcer 36.5%; gall bladder pathology 26.5%; genito-urinary pathology 6.0%. While it cannot be said that there was no coexisting appendiceal pathology, these statistics clearly indicate that there were other x-ray evidences in a large proportion which accounted for gastrointestinal disturbances.

It is our opinion that the percentage value of the determination of a diseased appendix, from the radiological viewpoint, is as high as the x-ray determination of the presence of duodenal ulcer. Clinical, surgical and pathological check-ups over a large series of cases, including series of others, confirm this statement. Too often reliance is placed upon the pathologist's report which may indicate a normal appendix on section. However, we must bear in mind that the pathologist reports his sections as he sees them and does not record symptomatology in retrospect. A careful evaluation must be made of the pathological findings, but the ultimate criteria must rest upon the clinical progress of the case.

Summary. In every case of suspected chronic appendicitis, a painstaking Roentgen examination of the entire gastrointestinal tract is indicated. This includes stomach, duodenum, small intestine and colon. We likewise feel that in no case should the gall bladder be omitted, and cholecystography should be carried out as a routine in every case. It may be necessary further, to include the genitourinary tract, either by means of scout films, excretion urography, or retrograde pyelography. In the female, often uretero-tubographic examinations with combined uretero-salpynogography and pneumoperitoneum may be indicated.

The differential diagnosis of chronic appendicitis is almost impossible without the aid of a satisfactory roentgenologic study, by which means a large number of conditions producing gastrointestinal symptoms, which may closely simulate appendiceal pathology, may be ascertained or ruled out.

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DIAGNOSIS OF ACUTE APPENDICITIS IN CHILDREN

H. W. Elghammer, M. D.

CHICAGO

Abdominal pain and distress together with gastrointestinal symptoms are extremely common in infants and children. Although the incidence of acute appendicitis is comparatively low the possibility of the latter should always receive serious consideration. The seriousness of acute appendicitis may be said to be inversely proportionate to the age of the child. In the younger ones, perforation and peritonitis develop rapidly.

The diagnosis of acute appendicitis is one of the most difficult and important problems encountered in the practice of medicine among children.

Statistical studies show that 50% of all cases of appendicitis occur during the first twenty years of life, and of these, 2.5% occur in the first 5 years, 6% between 6 and 10 years, and 16.5% between 10 and 15 years, and the remaining 25% between 15 and 20 years.

There seems to be a slight seasonal variation with the increase occurring during the summer months, due to the prevalence of gastroenteritis at this time.

The symptoms and signs in the first 5 year period differ distinctly from those in the older groups and will be considered separately. This group is also deserving of special mention be-

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cause of the high mortality, being eight to ten times greater than that in the 5 to 15 year group, and is due chiefly to the delay in diagnosis and the rapidity with which peritonitis develops. In a large series, 90% were found to have peritoneal involvement at operation. Cooperation and information are difficult to obtain in the younger child and the physical findings are indefinite until peritoneal irritation and perforation occur.

Generalized symptoms and behavior are more diagnostic than local findings. Severe illnesses in infants are not associated with restlessness, and when a child is restless, unable to sleep, cries a great deal, exhibits a pallor and assumes a typical posture while lying in bed with the right leg flexed on the abdomen, and has increased costal type of breathing, one may well consider appendicitis as the cause. Vomiting is quite a constant symptom and occurs soon after the onset of pain. The bowels may be normal or constipated. The temperature is rarely elevated higher than 101 degrees, and the leucocyte count, which may be of diagnostic importance, rarely exceeds 20,000.

In the differential diagnosis, one may consider intussusception, but the distinct suddenness of onset of pain, the shock as evidenced by pallor and clammy perspiration, together with the relaxed abdomen and the findings of a sausage like tumor and the currant jelly like bloody mucus obtained on rectal examination, will, in most cases, establish this diagnosis.

Acute mesenteric lymphadenitis cannot be accurately differentiated from acute appendicitis although the tenderness is usually less than the pain experienced by the patient. The process may or may not involve the appendix and it may be well to make the diagnosis of appendicitis in lymphadenitis rather than to consider a lymphadenitis as such and later find signs of a ruptured appendix.

In certain cases of hypertrophic pyloric stenosis the onset may be rather sudden. The projectile type of vomiting together with definite gastric peristaltic waves and the occurrence of a pyloric tumor should however establish this diagnosis.

Primary peritonitis is a rather rare condition which may develop from rupture of the mesenteric lymph nodes or by direct passage of the inflammatory products through the intestinal wall. In this condition, the child appears extremely ill, the abdomen is distended and rigid, and signs of general intoxication are present. The leucocyte count is frequently very high, reaching 75,000 at times.

Colic is, perhaps, the most common abdominal pain in infancy. It is paroxysmal in character, recurs from day to day, pressure and massage seems to decrease the pain and complete relief is usually obtained when the bowels are evacuated together with the passage of flatus. This together with the absence of fever establishes the diagnosis.

In the older children, the group of 5 to 15 years of age, the symptoms and signs of acute appendicitis are quite similar to those encountered in adults. I believe it is worth while to restate and emphasize the sequence of symptoms. Pain is the initial symptom in an acute attack of appendicitis, later followed by vomiting but practically never preceded by it. The pain in the early stages is colicky in nature and usually referred to the region of the umbilicus and upper portion of the abdomen. This pain may be explained by the obstruction and tension within the lumen of the appendix and is transmitted through the sympathetic nervous system. Later, with peritoneal involvement the pain localizes in the right lower quadrant and becomes quite different in character. It is usually less severe but constant. This pain is due to parietal involvement of the peritoneum and the impulses are transmitted over the afferent branches of the cerebrospinal tracts. Local findings are absent when the appendix is retrocecal or retroiliac until the process is well advanced because these parietal spinal nerves are protected by the cecum and ileum. Similarly localization is absent when the appendix lies in the pelvis because of the lack of peripheral nerves to those segments of the abdominal wall.

Therefore, it is evident that the early pain of appendicitis is quite different from the later one, as to character, cause of production and nerve inervation. The later pain is due to parietal peritoneal inflammatory reaction and is transmitted over the cerebrospinal tracts. Early in appendicitis we have the pain of obstruction later followed by that of infection.

With these facts in mind, one proceeds to

examine the child for the presence of localized tenderness, muscle spasm and rigidity. By gradually gaining the confidence of the little patient and using gentleness during the procedure, one is able to elicit the true findings. The examining hand should be warm and all parts of the abdomen and lower part of the chest carefully palpated before any attempt is made to detect tenderness or rigidity in the right lower quadrant. Before attempting deep palpation, one may often elicit a hyperesthesia of the skin of the right lower quadrant. Muscle spasm and rigidity of the right rectus may be present over its entire length up to the costal margin.

The finding of a definite point of tenderness is, to my mind, of great diagnostic importance. We must keep in mind that the appendix may occupy a number of different positions in the abdomen. In case of insufficient descent of the cecum, the tenderness is found to be high. Where rotation has not been complete, that is in the retrocecal or retroiliac type—this point of tenderness may be in the flank or in the region of the right kidney. Not uncommonly, due to exceptional length of the appendix in childhood together with a long mesocecum, it is often found below the brim of the pelvis. On this account, the point of tenderness may be at McBurney's point —in the right flank—or may not be elicited at all unless a careful rectal examination is made when one may find a decided difference between the right and left sides. Pain may often be elicited in cases where the appendix is situated posteriorly, by applying gentle pressure through the abdominal wall toward the psoas muscle and at the same time supporting the right leg. By suddenly withdrawing support to the leg and thereby causing the psoas to contract against the inflamed appendix, definite pain may be produced.

The *vomiting in acute appendicitis is as a rule not persistent or forceful,* although cases are met with where the vomiting assumes alarming proportions.

Anorexia is usually present even to the degree of aversion to food. I think we may say that we rarely or never see a child with acute appendicitis complaining of hunger or expressing a desire for food.

Careful observance of the posture and general behavior of the child often gives valuable information. The child may not appear acutely ill. The color may be normal or there may be a pallor to the face due to nausea. Restlessness may be due to distention of the appendix or to pain. Respiration is definitely costal in character rather than abdominal and the patient assumes a position in bed which will insure maximum relaxation of the abdominal muscles as evidenced by flexing of the leg on the abdomen. This protective attitude can often be demonstrated if the child is carefully assisted out of bed and asked to take a few steps. He will then favor the right side by keeping the right leg flexed at the hip and knee and walk with a considerable limp.

In the pelvic type of appendicitis, rectal examination is of particular value. The left side should be examined first to obtain normal feel, then the right side. Tenderness, tension or a mass may often in this way be elicited. In such cases, inward rotation of the flexed right thigh will produce a pain (the s. c. "obturator" sign).

Chills are rarely if ever present at the onset of appendicitis. The temperature is usually low, 99 to 100 degrees, and rarely exceeding 101 degrees. A differential leucocyte count may or may not be indicative. The total count rarely exceeds 20,000 but the polymorphonuclears may exceed 80%. Of course, it is a well known fact that a drop even in a moderate leucocytosis may indicate perforation and a "silent" period until peritonitis sets in.

Diarrhea is encountered in certain types, particularly in those where the appendix is retrocecal and the inflammatory process extends to the cecum and adjacent ileum. On the other hand, appendicitis is occasionally seen as a complicating disease during or following severe infectious enteritis. Similarly dysuria or hematuria may be present in cases where the appendix is in close proximity to the ureter or bladder.

The differential diagnosis of acute appendicitis in children involves many more problems than in adults. Many conditions occur in children which may be mistaken for appendicitis.

Pneumonia with or without pleurisy often presents symptoms suggesting acute appendicitis; 25 patients out of 145 cases of pneumonia admitted to Boston City Hospital were sent there under diagnosis of acute appendicitis.

The general appearance of the child with

pneumonia is rather striking and different from that of acute appendicitis. "The child appears sick, face is usually flushed, increased grunting respiration, temperature is usually above 101 to 104, leukocytosis is high, frequently above 20,000, the respiration is abdominal in type, the respiratory excursion of the abdomen is greater than that of the chest."

The child with appendicitis is usually pale, lays quiet in bed, assuming a posture to insure abdominal relaxation,—the temperature is low, leukocyte count usually below 20,000, the respiration is costal in type; the costal respiratory excursions greater than the abdominal. The value of comparing the costal and abdominal respiratory excursion has been demonstrated by the work of McClure.

In border line cases and particularly in the early stages of central pneumonia the x-ray findings of the lungs are of great importance.

Abdominal pain is a frequent complaint in many forms of sore throats, particularly so in pharyngitis of s. c. grippy infection. The pain is colicky in nature; may be mild or severe. All parts of abdomen seem to be tender but the pain is usually greater than the tenderness. That is the reverse of appendicitis. The differential diagnosis may be exceedingly difficult to make, particularly as we frequently see acute appendicitis associated with or following upper respiratory infections.

Symptoms of appendicitis often occur in the acute infectious diseases. Measles, particularly in its early stage, may present such a picture. Here careful search for Koplik's spots together with leukopenia establishes the diagnosis. In this connection I would like to quote from Ronaldson, who made a recent study at three of the large contagious hospitals in London: "The appendix is frequently involved in the pathological processes which are met with in the acute infectious diseases; but suppurative appendicitis is rare; appendicular symptoms are less common than might be expected, and localizations are exceptionally rare."

Pyelitis may simulate retrocecal appendicitis. Temperature is higher than general condition would indicate. Repeated urine examinations must be made and the amount of pyuria taken into consideration.

Summary: Acute appendicitis is rather rare in infants and children under 4 years of age.

Any young child with reslessness, abdominal pain, vomiting and low-grade temperature must be considered a potential case of appendicitis.

The pain in appendicitis is first of obstruction and tension within the lumen of the appendix and is registered through the sympathetic pathways. This pain does not shift nor change into the second pain. This later pain is of independent origin and is transmitted over afferent branches of the cerebrospinal tracts.

General postural characteristics, certain methods of examination particular to children, are of importance in the diagnosis.

In early diagnosis and the avoidance of cathartics lays our hope of decreasing the mortality of appendicitis in children.

5307 Hyde Park Blvd.

DIAGNOSTIC DIFFICULTIES IN APPENDICITIS

LeRoy H. Sloan, M. D.
Attending Physician, Cook County Hospital
CHICAGO

I am left with the happy task of summarizing what has already been said. So inclusive and so excellent have been the preceding papers that I shall attempt to add very little to them.

The diagnosis of acute appendicitis is made on five cardinal features and five alone, namely, abdominal pain, nausea and vomiting, tenderness and rigidity, fever and leucocytosis. These are the cardinal features and should be present in every typical case of acute appendicitis. I have never seen acute appendicitis without abdominal pain. I have seen patients without nausea and without vomiting but in the typical case vomiting is present usually once. I have never seen a patient with acute appendicitis who did not have localized tenderness and rigidity. One must be able to appreciate the differences in rigidity between the two sides of the abdomen. I have seen patients who did not have a fever not even when the temperature was taken by rectum but this is not the rule and is certainly uncommon. The patient should have a fever; it should not be high; it should range from perhaps 99.6 to 100.6 or 101. When it is higher, at least

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in adults, watch out. I do not believe that I have ever seen an acute appendicitis without a pretty fair increase in the percentage of polymorphonuclear leukocytes even in a count which is on the borderline. When a patient with the typical history and findings has a low blood count one may with great propriety ask for another count because at times even the laboratory makes a mistake. In such a situation two counts are better than one.

Now the two features which must be present in order to make a diagnosis of acute appendicitis are 1. abdominal pain, and 2. localized tenderness. Without them I do not know how you can make a diagnosis of acute appendicitis. And of all the features the probability is great that given a history which is at all suggestive, the presence of definite localized tenderness is the most important.

The diagnosis of acute appendicitis, therefore, rests on the orderly sequence of the march of symptoms combined with the findings of localized tenderness, some fever and at least a polymorphonuclear increase.

I should beware of the patient who has pain which started some place other than where it should have started. I should beware of the patient who first had pain in the back, first had pain in the pelvis, first had pain right over the right lower quadrant, first had pain in the right upper quadrant. *A priori* this is not appendicitis. I should beware the patient who has an initial vomiting without pain. I should be disturbed in making my diagnosis of acute appendicitis if diarrhea complicates the picture early and particularly if this diarrhea is coupled with nausea and vomiting more than once. I should hold my diagnosis in abeyance for a bit if the picture starts out with a chill. Look here for pyelitis or for pneumonia or for malaria. I have seen appendicitis with chills but only when the acutely inflamed appendix lay over the ureter or tucked up by the renal pelvis. Now I should be much disturbed by a leukopenia. I do not believe I have ever seen an honest acute appendicitis with a leukopenia. When such a blood count comes along in the presence of suggestive findings, then do another blood count, perhaps a third, have a differential done and if the differential does not show a good clean polymorphonuclear predominance do not operate at once, observe the patient for four hours let us say. Beware the leukopenia, watch out for the patient with a cough, watch him breathe, look at the ala nasi for dilatation, look carefully at the sputum if he is able to bring any up. Our acute appendicitis may be diaphragmatic pleurisy or central pneumonia low in the lobe.

It would appear to be good procedure to observe our patient with acute appendicitis for perhaps two to four hours, i.e. assuming that we have seen him early. In this period one may rule out or in those disturbing features which crop up later to embarrass us.

After the patient has been sick for two or three days then one is confronted with a different picture. Here he must differentiate the *complications* of appendicitis; rupture, spreading peritonitis, tumor formation, ileus, etc. Here it is, that a consideration of the orderly sequence of events in the clinical march of the disease is of great value in indicating either the diagnosis or the procedure necessary at the time.

The patient who has pain on deep breathing, the patient who refers his pain to the right shoulder on deep breathing probably has a diaphragmatic pleurisy, not appendicitis. If he does have an intra-abdominal process it is more likely to be an acutely inflamed gallbladder under which situation pain at the end of deep breathing is common.

In perforation of a peptic ulcer the one essential is board-like rigidity. Also in acute pancreatitis. If you cannot dent the epigastrium and a bit later cannot secure any relaxation at all of the upper abdominal muscles you do not have appendicitis, you have a perforated ulcer or pancreatitis.

In tabes dorsalis with crisis the abdomen is usually flat and soft and the patient vomits and vomits. In mesenteric thrombosis one must look for a focus of such an embolus—if the heart is fibrillating then consider the possibility of mesenteric embolism.

Again in a female patient an acutely *severe* insult to the abdomen is not apt to be appendicitis, it is more apt to be a ruptured ectopic pregnancy or a twisted ovarian cyst. In other words, the orderly progression is lacking and the outstanding feature is an acute and sudden insult with a subsequent pallor and coldness.

Lead colic usually has a flat scaphoid abdomen.

Herpes zoster before the vesicles has a very, very sensitive superficial skin. Pyelitis is almost always associated with plenty of pus on catheterization of the bladder. I know of no way of differentiating diverticulitis from acute appendicitis and I do not think any one else does either, that is Meckel's diverticulitis. However, we can keep it in mind especially in children.

Therefore, let us summarize: Acute appendicitis is diagnosed on the orderly march of the symptoms of epigastric, paraumbilical pain which in four to six hours localizes over the anatomical position of the appendix, followed by nausea and vomiting usually once, rarely more, and associated with localized tenderness and rigidity, a moderate fever, and leukocytosis. The differential diagnosis takes in many, many conditions, which situation predicates and examination of the entire patient and an evaluation of numerous possibilities.

Beware the patient with acute appendicitis whose pain starts with a chill, which starts some place other than in the epigastrium or about the umbilicus, who has a high fever, who has a low blood count and especially a leukopenia, who vomits and vomits, who has a persistent diarrhea, who coughs and has pain in deep breathing. Lastly, without localized tenderness and a history of abdominal pain do not make a diagnosis of acute appendicitis.

55 East Washington Street.

POST-OPERATIVE COMPLICATIONS OF ACUTE APPENDICITIS AND THEIR TREATMENT

Ciney Rich, M. D.

DECATUR, ILLINOIS

The postoperative complications of acute appendicitis and their subsequent treatment, depends to a large extent upon the stage of the disease with which one is dealing. Thus, complications are most rare when the operation has been performed in the first thirty-six or forty-eight hours. They are more numerous and grave during the intermediate period extending from the second to the sixth day. Cases living to come to later operation, usually have developed an immunological response and some localization of their peritoneal infection.

Among the commoner postoperative complications are peritonitis, local or general. With the spread of peritonitis "adynamic" or paralytic ileus develops. The abdomen becomes distended, on palpation there is a "doughy feel," and peristaltic activity is at a minimum. Frequent regurgitation, hiccough and rectal tenderness, associated with a rapid rise in temperature and pulse follow. The Ochsner routine, high Fowler's position, with the patient sitting up, the indwelling nasal catheter, negative suction, intravenous glucose 5% in sterile water, subcutaneous fluids, enemas, morphine freely, pitressin, stimulants and general symptomatic treatment should be instituted early. Continuous negative suction through the rectal tube may also be used. Don't forget that the patient's thirst is a good guide to his need for fluid.

Mechanical obstruction occurs later than paralytic, usually occurring between the sixth and tenth days. Colicky pains associated with nausea, and vomiting, and a rapid rise in pulse rate, out of proportion to the temperature rise is present. Peristaltic activity may be seen, felt and heard. Surgical interference usually becomes necessary, although with the use of constant negative suction, relief of the obstruction may follow if it should be on an inflammatory basis.

Secondary abscess should be suspected if the temperature and leucocyte count remain high. A mass can sooner or later be demonstrated by an area of localized tenderness and resistance in the abdomen. Surgical intervention should be postponed until definite fluctuation is present. At this stage the abscess can be opened without again contaminating the free peritoneal cavity. Frequent rectal and vaginal examinations should be made to detect the presence of pelvic abscess. These may be drained through the rectum in the male and through the posterior fornix in the female. The drainage should be done when possible keeping out of the free peritoneal cavity.

Subphrenic abscess usually appears still later and can be best demonstrated by the x-ray. It may be suspected by a recurrence of fever with a progressive septic process. Increased liver dullness with diaphragm elevation, and sometimes edema in the mid-axillary line, can be demonstrated.

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Fecal fistulas, frequently follows long drainage especially where hard rubber tubes, which I never employ, have been used. These cases, however, usually recover, and the fistula usualy heals spontaneously. They are a great discomfort to the patient. Constant suction at the site of the lesion may greatly facilitate healing.

Pulmonary complications are most apt to occur following a general anesthetic, but they may follow local or spinal anesthesia.

Thrombosis, especially of the left femoral vein, liver abscess, pylephlebitis, pyemia, and embolism, may occur. Postoperative adhesions are usually present in the abdomen which has been opened. Incisional hernia is especially apt to occur in the pus case or in any case where stress or strain comes during or after closure. This is much less apt to occur with the McBurney incision.

Late partial, or complete intestinal obstruction may occur, often years after operation.

I wish to briefly report on 563 consecutive cases of acute appendicitis which I have operated on. Of this number, complications were encountered in 101 cases; 90 of these patients had a ruptured appendix with peritonitis, all when I first saw them. In 47 cases the appendix was removed, drainage instituted, and the patients recovered without further complications.

In 8 cases the abscess only was drained and these are now all well for an average of four years with no further trouble.

In 4 other drainage cases, three came to surgery for a gangrenous appendix in one year and one in eight years.

Seven pregnant women were operated on, three miscarried. One, six months pregnant, had a ruptured appendix with a generalized peritonitis, recovered, and went to term for normal delivery. The only one drained. Another with a 20,000 white count, appendix full of pus, went to term with a normal delivery. A third, a seven months case with a 17,000 white count, with a gangrenous appendix, not ruptured, went to term normally. The three cases which miscarried, were all under three months.

Fecal fistula was encountered only once. This patient, who was at first only drained, developed a fecal fistula, intestinal obstruction, and a recurrent gangrenous appendix in thirteen months time, much of which time he spent in the hospital.

Other complications were, seminal vesicle abscess 1, acute pancreatitis 1, incisional hernia 2, thrombophlebitis 3.

Eight had secondary localized abscesses as well as other complications which included hernia 1, intestional obstruction 1, suppurative parotitis 1, lung abscess 1, pneumonia with em pyema 1. All the above cases recovered. In all these, except one, the appendix was removed at the primary operation, and this patient today is well, eight years after operation and he still has his appendix.

From the 101 complicated cases, 21 deaths occurred, (3.7 per cent. of the total cases) and all these were caused by a generalized peritonitis and its associated complications except four. One pus case developed an atelectasis of the right lung. One died three months after the primary operation from a mesenteric thrombosis and a gangrene of the bowel following a suppurative Meckel's diverticuleum which was not recognized at the first operation. One died of an influenzel bronchopneumonia. One, a clean case, died of embolism on the day he was discharged to go home, the source apparently being the right iliac vein.

It must be remembered, that with the development of peritonitis there arises the question of procedure and as Dæ Costa has stated, the question is of choosing between a dangerous delay, or a dangerous operation. If the expectant treatment is thought feasible, then the method of Ochsner with various modification, may be instituted to control peristalsis and attempt to limit the infection. Although the usual plan has been to inhibit peristalsis and promote rest with the opiates. I feel that with marked distention the value of such drugs as pitressin or prostygmin in delaying the ileus far outweighs the danger of spreading infection by increasing the peristalsis.

In reviewing these 563 cases, I am again impressed with the fact that every operation has a percentage mortality. This mortality can be greatly lowered when physics are eliminated as a form of treatment for belly-ache. In the complicated cases about nine out of ten had taken one or more physics, and they had usually delayed consulting their physician.

References have been made freely from: "Preoperative and Postoperative Treatment," (Mason) and "Surgical Diagnosis." (Graham.)

WHOOPING COUGH: DIAGNOSIS AND PREVENTION

L. Sauer, M. D.
EVANSTON, ILLINOIS

Various factors contribute to the frequency of whooping cough, with its perennial toll of infant deaths. In the first place, the young are highly susceptible to infection with the Bordet-Gengou whooping cough bacillus. Although the incidence peak is in the fourth year of life, nearly all whooping cough deaths occur during the first two years. In the second place, infected infants develop immunity with difficulty; they are prone to contract serious intercurrent diseases, chiefly enteritis and bronchopneumonia. The non-immune child will not develop whooping cough unless pertussis bacilli reach the deeper, vulnerable parts of the respiratory tract. This pathogen soon becomes established in this fertile soil —its natural habitat—where it multiplies rapidly. Within a fortnight, the first clinical manifestations occur. The most contagious period is early, before the characteristic whoop is well established. Diagnosis (and quarantine) are often delayed, because early diagnosis is usually beset with difficulties. A history of intimate exposure of a non-immune child to a coughing child who subsequently whoops and vomits, is often of diagnostic importance, especially when the disease is prevalent. In no other contagious disease of early life are diagnosis and quarantine so long delayed. As a result, in the course of a few months, numerous new cases spring up in the community.

The cough plate method of early diagnosis has withstood the test of time. Due to the difficulties encountered in various steps of the technic, comparatively few laboratories make use of it. When the whoop is already well established, plates are seldom positive. When freshly prepared plates of Bordet-Gengou medium are properly exposed (Fig. 1) early in the disease, the minute, zoned colonies of the whooping cough bacillus are often visible at the end of three days' incubation. Negative plates, no matter how well they are coughed upon, do not exclude whooping cough. A child, who has completely recovered from whooping cough, may develop a recurrent, paroxysmal cough, months or years later. The attacks of coughing may simulate pertussis. Cough plates have been exposed to quite a number of such coughing children who had had unquestionable pertussis previously. In only one such instances was B. pertussis recovered. If a child has had typical pertussis, it is rather unusual for a subsequent, paroxysmal cough to be due to B. pertussis. Mothers, and especially grandmothers, on the other hand, when intimately and repeatedly exposed to children with pertussis in the household, not infrequently contract the disease a second time. Cough plates, exposed early, in over twenty such instances, have usually been found positive.



Fig. 1. A positive cough plate is a valuable aid to early diagnosis.

Lymphocytosis gains in diagnostic importance when the cough has persisted for more than ten days, or whenever well-exposed plates are negative. A white cell blood count below 15,000, or the absence of lymphocytosis does not exclude pertussis. When differential white cell blood counts are made, it should be borne in mind that during the first few years of life, an excess of small lymphocytes is normal. The second half year of life is probably the best age for prophylactic vaccination with potent B. pertussis vaccine. The details of its commercial preparation have been perfected. Since physicians more fully appreciate the importance of vaccine refrigera-

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tion, dosage and details in administration, failures have become infrequent. The total dosage for children less than two or three years of age is 8 cc., (2., 3., 3. cc. in three weekly injections), just under the skin. For children more than two or three years of age, the total dosage is 10 cc.—2., 4., 4. cc. at weekly intervals. Commercial vaccine, authorized by Northwestern University Medical School, is made by two biological laboratories. Most infants and young children, injected with such vaccine, acquire immunity within several months.

Since 1932, we have injected a total of 8 or 10 cc. of these two authorized, commercial vaccines into about 3000 non-immune infants and children. These were quite equally divided among private patients, Evanston Health Department "Welfare" infants, "The Cradle," and other institutions. Their average age was about ten months. About 300 instances of probable exposure have been reported, subsequently, by the mothers, welfare and institutional nurses. In over fifty, intimate exposure occurred in the household, to pertussis in the non-injected, older (control) children. To date, a total of 25 injected children have contracted the disease, more than four months after inoculation.

In 1936, 91 cases of whooping cough were reported to the Evanston Department of Health. The annual average for the ten preceding years was 334. Only one of the 91 children had had pertussis vaccine. That child had had the injections after he had been exposed.

CONCLUSIONS

Earlier diagnosis, earlier quarantine and three, weekly preventive inoculations with authorized vaccine (preferably during the second half year of life), should decrease the incidence of whooping cough with its perennial toll of infant deaths.

DISCUSSION

Dr. Orville E. Barbour, Peoria: It seems to me that one point worthy of emphasis is the frequent difficulty of diagnosis of whooping cough cases. Any measure which may help, such as the cough plate, is certainly worthwhile. Dr. Sauer has pointed out that one needs to take into consideration the history of exposure, the nature of the case, the whoop, the blood picture, and the cough plate if it is available. I hope that Dr. Sauer's efforts will stimulate the health commissioners' of Peoria to have the cough plate cultures made available for the physicians of this and adjacent communities. Such an action should prove of distinct benefit in assisting in the diagnosis and control of whooping cough cases. It should be kept in mind, however, that the cough plate is not infallible. It is not an absolute diagnostic method, but a useful aid towards making a diagnosis.

I would like to pay tribute to Dr. Sauer for the splendid work he has done. Whooping cough has taken a terrible toll of infants and children. Anyone who will give a great deal of both time and energy along with a busy private practice, to work out a method for protecting our children from this dreaded disease, as Dr. Sauer has done, deserves a great deal of credit. His percentage of apparent protection is encouraging. So far our results in Peoria seem to be better than that. Whether or not this higher percentage will continue, of course only time will tell. Immunized children who later do contract whooping cough do seem to have milder cases. Such interpretations, however, are dependent upon personal impressions, and do not constitute positive evidence of the value of the immunizations.

Just one more thing which I believe is worth mentioning. Up until a year ago most of us were injecting diphtheria toxoid before giving the whooping cough immunizations. At the meeting of the American Academy of Pediatrics at Kansas City last year, Dr. Leake of the U. S. Public Health Service at Washington, D. C., told us that it had been found from statistics that the previous administrations of diphtheria toxoid seemed to inhibit the beneficial effects of whooping cough immunizations. With that in mind, those of us who had the benefit of Dr. Leake's suggestions have been advising the whooping cough immunizations at six months, the diphtheria toxoid at nine months, and smallpox vaccination between ten and twelve months of age.

Dr. L. W. Sauer, Evanston (in closing): I have nothing to add except to stress the importance of giving the vaccine early in life. In children more than two years of age, give 10 c.c. in place of the customary 8 c.c. Since we have done that, we have had fewer failures with the authorized commercial vaccine.

THE TREATMENT OF SPINAL CORD INJURIES

Loyal Davis, M. D.

CHICAGO

Damage to the spinal cord or nerve roots which accompanies fractures or dislocations of the vertebræ seriously complicates otherwise simple therapeutic measures. In some of these cases the judgment of the physician is tested to its utmost to determine the proper pathologic diagnosis and the most effective therapeutic procedure. The question is not alone that of the indications for or against surgical measures;

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rather, the problem is one of diagnosis and treatment wherein anatomy, neurophysiology, and neuropathology play a greater part than is at first apparent.

Nearly all of the injuries of the spinal column which are associated with cord injury are produced by violent flexion or extension of the spine. The force may be applied to the lower end of the spinal column, as is illustrated commonly in falls from a considerable height or in automobile accidents; or to the head, as is illustrated by diving into shallow water. The vertebræ may be dislocated, or, as is more common, there may be a fracture-dislocation. In addition to a fracture of the body of the vertebra, there may be a fracture of one or both articular processes with a forward displacement of one vertebra upon the next below or, the laminæ and processes may be involved. The degree of injury to the spinal cord is dependent upon two factors: the amount of displacement antero-posteriorly and laterally, and the rotation of the vertebra.

True anatomic damage to the cord may vary in degree from that caused by one or more small discrete areas of hemorrhage to larger lesions due to gross hemorrhages. Other foci of damage may be more mechanical in type and vary from partial compression to complete transection of the cord.

From a consideration of the anatomic relationships between the spinal cord and the vertebral column, it is not difficult to understand the mechanism by which the spinal cord is damaged in fractures of the vertebræ. Nor is it difficult to understand how severe blows or jars to the spine may cause damage to the spinal cord with hemorrhages into its substance. In fact, the wonder is that of all the patients who receive fractures and fracture-dislocations of the vertebræ there are not more instances of injury to the spinal cord among them.

The injured spinal cords may show as diversified a picture as the patients show clinically. At the site of the injury there is an initial edema and hemorrhage, varying from petechial to gross, within the substance of the cord. Early one can find swelling of the myelin sheaths, breaking up of the myelin, and later fragmentation of the axons. Phagocytes and scavenger cells of various origins, both from the blood (leukocytes) and from the nerve tissue (microglia, astrocytes), are in evidence, especially near and in the area of major damage. The ganglion cells undergo a change in cases of severe spinal shock even though recovery may occur. In severe local lesions the ganglion cells at the site of injury are involved to a greater degree; but even those cells some distance below the level of the lesion early present a picture not unlike that of beginning Wallerian degeneration, a state known as an axonal reaction. These cells usually recover and later may show no microscopic signs of previous damage.

It goes almost without saying that every case of injury to the spine should be subjected to a careful and painstaking neurologic examination. For this purpose a knowledge of some fundamental facts of neuroanatomy and neurophysiology and familiarity with a few important fiber tracts are necessary for the simplest understanding of spinal cord lesions and the resulting symptoms. In addition, however, there are certain facts which must be kept in mind about the vertical localization of motor, sensory, and reflex functions in the different segments of the spinal cord.

If only a few of the motor segmental levels are kept in mind they will serve as an aid in determining the location of a given lesion. For example, the motor segmental innervation of the deltoid muscles, which abduct and externally rotate the arm, is in the fifth cervical segment of the spinal cord. The biceps muscle is innervated by the sixth cervical segment, and the triceps by the seventh cervical segment. Therefore, given a patient with a spinal cord lesion, who can flex but is unable to extend his forearms, one may state definitely that the lesion does not extend higher than the seventh cervical segment. Likewise, the abdominal recti muscles above the umbilicus are innervated by the ninth and tenth thoracic segments, while the same muscles below the umbilicus are innervated by the eleventh and twelfth thoracic segments. Therefore, when the patient is asked to flex his neck with the hands by the side, if the umbilicus moves upward evidence is present of paresis or paralysis of the lower halves of the recti muscles. This is known as Beevor's sign and aids in determining the level of a lesion at the tenth thoracic segment.

Many anatomic, physiologic and experimental investigations have shown that the skin of the

body is divided into zones in relation to the various segments of the body. If one imagines the body in the all-fours position of our ancestors, and then makes transverse sections of the body at regular intervals, beginning at the neck and passing to the coccyx, the segmental sensory distribution of the spinal cord will be understood more clearly. Because in this posture the thumbs and great toes naturally are in an advanced position, it will be readily seen that the corresponding sides of the arms and legs will be sectioned at a higher level than will be the opposite sides. For this reason the radial sides of the upper extremities are represented by a higher segmental level of the spinal cord than are the ulnar aspects. In the same manner the medial aspects of the thighs and legs are of a higher segmental level than are the external sides of the lower extremities. The successive segmental levels in the thoracic region are understood easily, and as one passes caudally the segmental representation of the primitive tail is about the anus. It is apparent at once that a loss of sensation which corresponds to a segmental area is diagnostic not only of a spinal cord lesion but of its level as well.

To these general diagnostic aids may be added the important symptoms characteristic of *upper* and *lower motor neuron lesions. Lower motor neuron lesions* occur as the result of injury or disease of the anterior horn cells, the anterior roots or the peripheral nerves, and only of those structures. They are accompanied by a flaccid paralysis, loss of deep tendon reflexes, muscle atrophy, and the reaction of degeneration as determined by electrical stimulation of the muscles. Of these three possible sites of a lower motor neuron lesion, the presence of sensory changes is diagnostic of a peripheral nerve lesion. An *upper motor neuron lesion* is characterized by the presence of a spastic paralysis, exaggerated deep tendon reflexes, absence of muscle atrophy, pathologic reflexes (Babinski, Oppenheim, Gordon, Chaddock) and absence of superficial reflexes (abdominal and cremaster). Such a lesion may occur at any level in the corticospinal tract. The occurrence of cranial nerve paralysis, involvements of other functional systems and the distribution of the motor weakness will determine the level of the lesion. For example, a paraplegia occurs rarely in cortical lesions but is common in spinal cord lesions.

It is unfortunate that there are no known criteria by means of which the doctor can differentiate clinically between a complete physiologic and a complete anatomic interruption of spinal cord function. The former may be a more or less rapidly recoverable lesion, but the latter is an irreparable damage from which recovery does not occur. As in the case with peripheral nerve lesions, a complete phyiologic interruption of the spinal cord cannot be differentiated from a complete anatomic section. Both are followed by complete paralysis in the muscles supplied by nerves which originate below the level of the injury. In both, complete sensory loss results below the level of the injured segment, and the reflex changes and bladder disturbances may be similar. Therefore, it becomes necessary to develop a method for the recognition of incomplete lesions.

Although many cases of incomplete anatomic lesions of the spinal cord show complete physiologic interruption, a large number may present only partial paralysis of the muscles below the level of the lesion or preservation of one or all types of sensation. In such cases the indications are quite clear. However, when the loss of motion and sensation is complete the problem is more difficult.

The symptomatology which follows a complete transection of the spinal cord may be divided into three stages:

The first is a stage of muscular flaccidity, corresponding to the period of spinal shock. In this state the paralyzed muscles are toneless and flabby, all the superficial and deep reflexes are lost, and there is a retention of urine and feces. At times retention of urine and incontinence of feces have been observed, and at times the cremasteric and bulbocavernosus reflexes have been elicited.

The second—or stage of reflex activity—begins with the first reflex response to an external stimulus, usually from the sole of the foot. In the full development of this stage a stimulus applied to any part of the lower extremity gives rise to a flexion reflex of the hip with adduction of the thigh, of the knee, and of the ankle. When reflexes can be evoked with ease, an extensive and widespread reflex action can be obtained

which has been called a "mass reflex." This consists of a flexion spasm of the anterior abdominal wall and of the lower extremity, evacuation of the bladder, when its contents accrue to a certain amount, and sweating from an area from the skin in the paralyzed region. One of the most receptive fields of exciting reflexes is the genital area, and the cremasteric, dartos, bulbocavernosus reflexes and erection of the penis are commonly present. During this stage, in some cases the knee and ankle jerks can be evoked.

The third stage, that of gradual failure of reflex functions of the isolated spinal cord, usually preceding death, consists of the gradual return to a condition closely simulating the first stage.

Certain differences of reaction in incomplete lesions may be pointed out. In complete lesions the flexor type of movements is observed commonly, while in incomplete lesions extensor types of movements are present frequently. In complete lesions, the posture of the lower limbs is one of slight flexion; in partial lesions, extension. As a general rule, partial lesions of the spinal cord show a condition comparable with that of a decerebrate animal in which there are defense reflexes with marked spasticity. Although an extensor type of response to plantar stimulation has been observed in complete section of the spinal cord, usually such a stimulation is followed by a plantar flexion of the toes, and as a fairly general rule, it may be stated that an extensor type of reflex is strongly indicative of an incomplete lesion. Inasmuch as prolonged states of toxemia, or septicemia from urinary sepsis, or bed sores, have a profound influence in hastening the reappearance of the reflex inactivity in cases of complete section of the spinal cord, it frequently occurs that from the practical standpoint, incomplete lesions are relatively easily recognized by the long persistence of spasticity and the signs of a paraplegia in extension.

Of particular value in the recognition of incomplete lesions is the early appearance of a Babinski sign; the failure to evoke mass reflexes from above the knee; a definite history of the absence of a state of spinal shock; marked tonicity in the paralyzed extremities; the involvement of both flexors and extensors in reflex movements provoked by the stimulation of receptive fields; and, of course, in obviously incomplete lesions, the absence of total paralysis or anesthesia below the level of the lesion.

The most discouraging experiences are upon record in the treatment of spinal cord injuries in the cervical region. We have observed eleven fracture-dislocations of the cervical vertebræ, all of which have been associated with definite symptoms of spinal cord injury. Six of these patients were injured by diving into shallow water; two were in automobile accidents; one patient had a pathological fracture of the fifth cervical vertebra due to a vertebral metastasis; one football player was among this group of patients; and another had injured himself falling down a flight of steps. The highest vertebral level was the fourth cervical and of these there were four while the other injuries involved the fifth, sixth, and seventh vertebræ. Fractures of the laminæ, spinous processes and dislocations anteriorly, posteriorly and laterally impinged upon the spinal canal in each of these patients, all of whom were operated upon, except one whose symptoms indicated an incomplete and spontaneously recoverable injury.

Injuries in the region opposite the cervical enlargement of the cord show characteristic symptoms. In all of our cases there was a more or less complete paralysis of the muscles of the lower extremities and the trunk with a partial paralysis of the muscles of one or both upper extremities. If the fifth and sixth cord segments are not injured the deltoid, biceps, brachialis anticus and supinator muscles are not involved although the muscles of the forearm and hands may be paralyzed. As Thorburn pointed out, these patients lie with the arms abducted, the forearms flexed and rotated outward. The power of the upper extremities may be preserved in injuries below the first dorsal vertebra although weakness in the triceps can usually be detected. In one of our patients, injured in an automobile accident, a fracture-dislocation of the fifth cervical vertebra had produced an immediate and complete loss of motion and sensation in both arms and legs. Within three weeks a slight degree of motion had returned in his left arm and leg and on this side below the clavicle there was a complete loss to pain and temperature stimuli. Sensation on the right side was intact though motion was completely absent. This interesting group of symptoms, first described by Brown-

Séquard, are indicative of a unilateral lesion of the spinal cord.

Severe pain in one or the other shoulder is prominent in injuries of the sixth cervical to the first dorsal vertebræ and there may be root hyperesthesias or anesthesias over the shoulder, in the axilla, or on the radial or ulnar sides of the upper extremities. If the lesion extends up to the fifth or sixth cervical segment the sensory disturbances will affect the radial side of one or both forearms, but if it does not extend above the seventh cervical segment only the ulnar sides of the upper extremities are involved. Priapism is frequent in injuries of the cervical cord and an elevation of the temperature to 107 or 108 degrees is quite characteristic. This type of hyperthermia is not affected by the common therapeutic measures employed to lower the temperature in other conditions.

Lesions of the brachial plexus may often accompany compression injuries of the cervical spinal cord. These are usually of two clinical types. There may be an immediate paralysis of all four extremities, which is quickly followed by the return of motion in one arm and leg. The opposite arm then presents a flaccid paralysis, the corresponding leg a spastic paralysis and there is loss of pain and temperature sensation on that side of the body in which motion has returned to the extremities. The spastic paralysis of the leg may eventually disappear and a residual flaccid paralysis of the upper extremity remains.

In another clinical type, the patient may sustain an injury to the brachial plexus and then several days or weeks later may develop a slowly progressive paralysis of the leg on the same side, with loss of pain and temperature sensation on the opposite side. In these cases it is necessary to determine whether the flaccid paralysis of the arm, distinctly a lower motor neuron lesion, is due to an injury to the nerves of the plexus, to the roots, or to the anterior horn cells of the spinal cord.

If the lesion is one of the plexus itself, the loss of touch sensation will be greater than the loss to pain. If it affects the roots, the loss of pain sensation will be more extensive than the loss to touch. If only the anterior horn cells are involved, sensation will be unaffected. However, if sensory loss exists with such a lesion of the gray matter, then light and pressure touch as well as pin prick and pressure pain will be absent. Finally, if the paralysis in the leg disappears relatively soon and the arm paralysis persists, it speaks for a brachial plexus lesion as against one of the spinal cord.

We have operated upon eight patients with injuries of the spinal cord due to fracture-dislocations of the eighth to twelfth thoracic vertebræ, but none which have involved the upper thoracic spine. All of these patients were injured in automobile accidents except two who fell from a height and struck in the sitting posture and one coal miner, who was dragged for a hundred feet in a jack-knife position. The rather characteristic symptoms produced by involvement of the twelfth thoracic vertebra are illustrated in the following case as are the dangerous results which are likely to follow unskillful attempts to reduce or "adjust" such dislocations:

A young woman fell down a flight of stair steps and immediately lost control of her legs and sphincters as well as suffering a loss of sensation to all stimuli below the level of the tenth thoracic skin segment. At the time of her injury she was 4½ months pregnant, but successfully delivered her baby at term. For two years she was subjected to attempts designed to reduce a dislocation of the twelfth thoracic vertebra. When she entered the hospital, the motor and sensory findings were unchanged; the deep tendon reflexes of the lower extremities were increased; pathological reflexes were present and the lower abdominal reflexes were absent.

A complete spinal subarachnoid space block was present and at operation the spinal cord was found to be compressed by the fractured twelfth thoracic vertebra. The dura matter was thick; the arachnoid was thickened and inseparable from the underlying traumatized spinal cord.

Loss of the abdominal reflexes and a loss of sensation over the abdominal wall corresponding to the sensory distribution of the segments involved are characteristic of lesions in the lower half of the thoracic spinal cord. Since the upper halves of the abdominal recti muscles are innervated by the eighth to tenth and the lower halves by the tenth to twelfth segments, Beevor's sign may be present. If the patient raises his head from the bed, with his arms at his sides, the umbilicus is pulled upward if the lesion is at the level of the tenth segment because of the paralysis of the lower halves of the recti. Likewise, the upper abdominal reflexes on one or both sides may be preserved while the lowers are absent.

Girdlelike root pains are most frequent in injuries of the midthoracic vertebræ.

Injuries of the lumbar vertebræ have occurred in each of our cases as the result of falling from horses; being thrown from automobiles, or jumping from a height; but in each instance the force of the injury has been received on the buttocks or the extended lower extremities. The spinal cord ends opposite the superior border of the second lumbar vertebra and below that level the spinal canal is occupied by the cauda equina. Consequently, the symptoms of a lower motor neuron lesion are frequently characteristic of an injury to the lumbar vertebræ. Flaccid paralysis, loss of the deep tendon reflexes, muscle atrophy, reaction of degeneration and loss of sensation in the area of distribution of the lumbar and sacral segments are the usual symptoms. However, because of the nature of the cauda equina, involvement of motor and sensory function may be very asymmetrical in the lower extremities. In one of our patients who had a compression fracture and an anterior dislocation of the first lumbar vertebra, the most extensive sensory loss was in the second and third lumbar skin segments on the left side. Likewise, many of the muscles of the right leg continued to react to the faradic current, whereas in the left leg faradic reactions were completely lost.

Retention of urine and incontinence of feces are prominent symptoms. Excruciating pains in the back, or radiating pains into the perineum, genitals, and often down the posterior surfaces of the thighs occur frequently as the result of root irritation produced by the fragments of fractured bone.

There are two problems which must be solved in the decision for or against surgical intervention in fracture-dislocations of the spine. First, is there a demonstrable block of the subarachnoid space, which means compression of the spinal cord? Second, is there x-ray evidence of bony encroachment upon the spinal canal? Positive evidence of subarachnoid block usually implies bony encroachment on the spinal canal. It must be emphasized that a complete anatomic lesion of the spinal cord cannot be differentiated from a complete physiologic section. Therefore, unless one has inspected the cord at operation there can be no justification for the assumption that the cord has been divided completely. Surgical intervention may be useless and often harmful in the presence of a complete transverse anatomical lesion of the spinal cord but, as has been pointed out, a complete transverse physiological lesion may be present from compression by a dislocated vertebra. It would appear that the benefit which may be derived from operative interference is based simply upon the question of whether or not there is pressure upon the cord by a dislocated vertebra or fractured fragments of bone. In the presence of such pressure there is no question as to the benefit to be gained by an operation. Perhaps the most valuable aid in addition to the x-ray and a careful physical examination is the employment of the Queckenstedt test of pressure upon the jugular veins.

Compression of the jugular veins in the neck of a normal individual causes a definite prompt rise in the intracranial fluid pressure (Queckenstedt's sign). This rise in pressure is transmitted normally to the fluid in the spinal subarachnoid space. Release of jugular compression in normal subjects is followed by a prompt return of the pressure to approximately its original level. When, however, this increase in pressure does not take place on compression of the jugular veins, it is indicative of an obliteration of the spinal subarachnoid space. Cases of partial block may be recognized by the slowness with which the pressure changes in the spinal system after compression of the jugular veins; the less than normal rise produced, and the comparatively long time it takes for the pressure to return after release of the jugulars.

Often the character of the dislocation or rotation of the fractured vertebra as shown upon the x-ray films is in itself sufficient indication for surgical intervention. However, occasionally, symptoms of cord injury may be present in the absence of x-ray evidence of bone pathology. In such instances we have come to depend entirely upon the presence or absence of a subarachnoid space block and in each of our patients operated upon a manometric block was demonstrated. It is justifiable to perform successive Queckenstedt tests to follow the persistence or disappearance of the block. This is true particularly if there are clinical evidences of improvement in the symptoms. Likewise, in the presence of demonstrable x-ray evidence of bone pathology and in the absence of a subarachnoid

space block, one is justified in waiting for a spontaneous improvement of symptoms. In other words, the demonstration of compression of the spinal cord is the indication for surgical treatment and not the supposed extent or character of the spinal cord damage.

The mere fact that there are signs of neurologic damage in injuries of the spine does not, however, constitute a surgical indication. In cases of spinal injury with minor neurologic symptoms, or signs of a recovering lesion, and no evidence of subarachnoid space block, treatment by the usual orthopedic measures is probably the method of choice.

With manifestations of neurologic involvement of a definite degree, where there is compression sufficient to cause a subarachnoid space block, there exists a definite indication for laminectomy. It is conceivable that certain cases may present themselves with major neurologic signs and x-ray evidence of severe bone injury (crushing and fragmentation with spicules driven into the spinal canal) which do not give evidence of a block on manometric study. These cases should certainly be operated upon.

There remain some patients who have a questionable amount of permanent neurologic damage, questionable block, and questionable x-ray evidence of encroachment upon the spinal canal. It is in these cases that perhaps the definitive judgment of the neurologist and surgeon is tested to its utmost. With these patients it is probably better to err on the side of a possible unnecessary operation.

With the knowledge that the spinal cord does not regenerate once it is anatomically severed, even if one believes in certain cases that the displacement and fragmentation of the bone has been so great as most certainly to transect the cord, these patients should not be denied an opportunity for recovery. In some, recovery will occur when the pressure is relieved, and no one can tell by clinical examination alone that a complete irreparable lesion is present.

Occasionally a patient presents himself with evidences of spinal cord damage at a time after the injury to the spine when the bony damage has completely healed. The question of surgical intervention in these cases is at times a delicate one. Here so much depends upon the nature of the lesion, the degree of disability it is causing, and the course of its progress that no inclusive rules can properly be laid down. In these cases every effort should be made to arrive at an accurate pathologic diagnosis before submitting the patient to an operation. Then probably only those cases with lesions which offer some chance for surgical relief should be operated upon.

The time of operation after receipt of the injury is important and is dependent upon the demonstration of a subarachnoid space block in addition to the physical condition of the patient. One may with justification wait for several hours until the immediate state of general shock has subsided before a laminectomy is performed; but this period should not be extended to the point of waiting for the cessation of symptoms of improvement in the presence of a block. Though considerable recovery may occur spontaneously, the mortality of the operation of laminectomy in competent hands is too low to justify such conservatism.

First-Aid Care. It is imperative that trauma to the spinal cord be recognized at the scene of the accident because careless transportation may be responsible for irreparable damage to the spinal cord. The public must be instructed that an injured patient unable to move his arms and legs or legs alone should not be moved except under the direct supervision of a doctor.

Attempts to lift the patient's head to enable him to drink water, thus flexing the chin onto the chest in the presence of a fracture-dislocation of the cervical vertebræ may destroy whatever cord function remains. If the patient can move his arms, hands, and fingers freely, but is unable to move his legs, he may be rolled over face downward, without lifting on the presumption that the thoraco-lumbar region is injured. If the arms and legs are paralyzed, the patient should be moved cautiously by three or four persons; one exerting gentle traction on the head and one on the feet while the others carry him, lifting beneath the shoulders, trunk, and hips.

In all cases the back should be carefully supported. If transported on the back, a rigid stretcher or even a solid one is better for these cases than a soft bed, in which they may sink and thus increase the fracture deformity. In fractures of the cervical spine, the head should be kept as if of one piece with the shoulders when moving or turning the patient. If these

precautions are rigorously observed, the injured patient may be transported in safety.

GENERAL TREATMENT

Care of the Urinary Bladder. The care of the bladder in these cases is a question concerning which there is probably more discussion and less unanimity of opinion. For a better knowledge of the subject it is well to understand the mechanisms behind the production of the so-called cord bladder. The neurogenic bladder may be defined as a bladder malfunctioning because of a derangement in the normal physiologic nervous mechanism which controls the emptying and filling of the organ. Because of the disruption of this mechanism in injuries of the spinal cord one is faced with various types of malfunction. There may be complete incontinence or retention with overflow. In some cases a so-called automatic bladder may develop, with more or less complete evacuation at intervals.

It must be remembered that the innervation of the bladder is all derived from the lower lumbar and sacral levels of the cord and that theoretically there may not be so much interference with bladder function in cord lesions above this level except for the loss of voluntary control over voiding. Practically, this works out in a satisfactory manner in handling the bladder disturbances of these patients. Centers in the sacral region of the cord below the site of the lesion keep up a slight tonus in the detrusor, and apparently give rise to an automatic voiding reflex when the bladder becomes distended. While much weaker perhaps than the normal voiding reflex, this reflex may be increased by stimulations reaching the cord below the level of the lesion. This accounts for the emptying of the bladder as part of the mass reflex excited in some complete lesions of the cord by pinching or stroking the legs.

Urinary infection alone will prevent a return of function in the spinal cord. The bladder should not be allowed to distend until overflow occurs and dribbling takes place. The stagnant urine distends an already paralyzed bladder wall beyond the possibility of recovery of its contractile power. Further, an ascending urinary tract infection occurs which endangers the life of the patient, and his possible chances for recovery. Likewise, frequent catheterizations cannot be performed without traumatizing the urethra and, even in the most careful hands, introducing the danger of infection. Therefore, a retention catheter should be introduced and left in the bladder for from ten days to two weeks at a time. A clamp should be applied and opened at intervals of four to five hours, depending upon the rapidity with which the bladder fills. This procedure will aid materially in establishing an "automatic bladder." The bladder may be irrigated daily with warm boric acid solution. Experience has shown that the use of the retention catheter is the most successful method of preventing urinary sepsis. In cases which are operated upon after urinary infection has occurred, a suprapubic cystostomy may be the only means of treating a serious bladder infection.

Decubitus Ulcers. It is extremely important to guard against decubitus lesions of the skin in the anesthetic areas of the body and extremities. The most successful method is to place the patient upon a water or air mattress which allows an equal distribution of the patient's weight. As has been pointed out, the loss of sensation is variable as a result of spinal cord lesions and involvement of the cauda equina is characterized commonly by sensory loss about the buttocks which has given rise to the term "saddle anesthesia."

The skin must be kept scrupulously clean and dry. Alcohol rubs and the application of cocoa butter should be given freely. As soon as is deemed wise, the patient should be turned on the side and propped there by pillows, so that strain on the paravertebral muscles is avoided and the same relative position of the spinal column is maintained. Harsh, stiff linen sheets which burn the skin must be avoided. The linen should be changed immediately if it becomes soiled from an incontinence of urine or feces. Nurses should be instructed about the ease with which hot water bags may produce blisters of the insensitive skin, which are commonly the beginning of a large spreading ulcer.

If they develop or are already present, decubitus lesions may be treated with excellent results by daily exposure to ultraviolet light. The necrotic edges of large ulcers should be débrided and all undermining pockets of necrotic tissue removed. The combination of Dakin's solution

irrigations and dry heat are also efficient in the treatment of this type of lesion.

After-care. The aim of treatment of spinal cord injuries should be to restore the patient to an economic and social independence. It is a common error to look upon the disabilities which result from these injuries as hopeless. Many of the crippling deformities and contractures which are observed commonly after injury to the spinal cord can be entirely avoided or to a great extent improved.

Gentle massage of the muscles, the use of radiant heat, and the whirlpool bath are all agents which have proven helpful. Passive movements may be carried out very well in conjunction with massage. They help to stretch contractures which have already occurred and to prevent those which invariably occur in an inactive or denervated muscle. They also increase the range of motion in an already stiffened joint and help to keep a mobile joint active so that when the time comes it is ready to perform its part as an effector mechanism. Such movements help to re-educate the muscles in performing normal movements. These exercises should be carried out slowly, gently, and never with quick, jerky movements. Each separate passive exercise should be individualized, and the patient be required to make the attempt to perform the movement simultaneously or to attempt to hold the part in the position imposed upon it.

The use of electrotherapy in spastic paraplegic patients accomplishes very little as compared to the results which may be obtained in the flaccid paralyses. Electrotherapy is indicated to prevent the atrophy of muscles and fibrosis, to increase nutrition and to conserve the functional capacity of paralyzed muscles until sufficient return of function has taken place to permit of active motion.

Splints have been found of little or no use in the treatment of spastic paralyses in the lower extremities. Deformities and contractures may be prevented in part from developing by massage and passive movements of joints. When the patient is confined to bed the extremities should be kept in extension and in abduction by the use of sandbags and pillows. The tendency for these patients to lie upon their sides constantly, with the extremities flexed, must be prevented. On the other hand, marked flexor and adductor reflex spasms may occur in spite of all efforts to prevent them. Constant supervision and careful nursing may prevent the grotesque, disabling deformities which may otherwise occur. When contractures have developed splinting is of little value, and operative intervention is indicated. Section of the obturator nerves, posterior root sections and tendon divisions have been employed in these cases to make the patient more comfortable, and his nursing care less laborious.

Much can be done by the intelligent use of splints in cases of flaccid paraplegia. While the patient is in bed, foot drop may be avoided by the use of sandbags against the soles of the patient's feet and a cradle over the legs to keep the weight of the bed clothes off the feet. These require careful and constant adjustments, and it may prove more desirable to use light crinoline posterior molded splints which may be removed easily for massage and passive movements.

When the patient becomes ambulatory the most satisfactory splint to prevent foot drop is a simple one which can be attached to the shoe easily. As is usually the case, the remainder of the extremity also requires support. A modification of the Thomas caliper splint may be employed; a spring lock at the knee joint enables the patient to flex the knee when he sits. When he is standing or walking this lock closes and the knee is kept in extension. The additional foot drop splint may be attached very simply to this type of apparatus.

Exercises and Muscle Re-education. Very often the paraplegic patient is looked upon by his physician as hopeless. Many times massage, active and passive movements, electrotherapy and splinting may be carried out quite effectively until the patient is ambulatory. It is necessary to teach him to use his recovering muscles to his best advantage. He must be taught to walk again. While one may feel that this will be accomplished gradually in spite of what may be done, there is no question but that progress has been more rapid as the result of directed muscle exercises and re-education.

One of the simplest devices to teach the patient to use his extremities may be made of small iron pipes and is similar to a baby's "walker." The patient stands within this frame, which is on rollers, and rests his weight upon his arms, which grasp its sides. Another excellent method

of re-education in walking is to have the patient walk in an aisle bounded by iron pipes, which may be grasped easily, and upon which he may rest his weight as he progresses. The floor of this aisle consists of a board upon which are painted numbered square spaces, varying in size. The patient attempts to place his feet within these spaces and as he progresses the wider spaces are utilized. The results of this method may be increased by having the patient observe the movements of his legs in a mirror.

It has also been found that the movements of the lower extremities may be performed more easily in slightly warmed water. This is true of the spastic as well as the flaccid paralyses. A Hubbard tank is an excellent means of carrying out these under-water movements. This may be installed in the basement of the home at relatively little expense, and is extremely valuable.

The few examples given of methods of re-education of the muscles of the lower extremities can be multiplied many times. In more advanced cases a stationary bicycle may be used or a rowing-machine employed to advantage. Just as in the re-education of the upper extremities, educative exercises which are productive intrigue the patient, and secure his whole-hearted co-operation.

THE IMMEDIATE TREATMENT OF COMPOUND INJURIES

Michael L. Mason, M. D.

CHICAGO

In the management of any injury the goal of surgical treatment is the functional and if possible morphologic restoration of the injured part. The open wound differs in but one respect from the closed wound, that is the solution of continuity of an epithelial surface and the contamination of the deeper tissues with pathogenic microorganisms from without. The presence of contaminating and possibly highly virulent micro-organisms is of such great significance, and the infection which may follow, if these organisms gain a foothold, is so disturbing to wound healing that the surgeon feels justified in taking every possible measure to rid the wound of bacteria. It is only natural that with the epoch making development of the science of bacteriology the healing of open wounds came to be thought of in terms of bacterial contamination, and an operation in surgery as an experiment in bacteriology. The great improvement which followed the introduction of Lister's methods in the treatment of compound wounds justified this attitude and antiseptic surgery became established. Attention was thus focused upon antiseptics and although in clean surgery asepsis gradually replaced antisepsis, the surgery of open wounds remained for a long time antiseptic surgery. Carbolic acid was replaced by tincture of iodine, and tincture of iodine now competes with dozens of different highly colored or artificially colored chemicals, each claiming superiority mainly on the grounds that it is more efficient in higher dilutions and less irritating to body tissue than any other agent. This very attempt to produce a non-irritating antiseptic should of course have given us a clue to the solution of the problem. It took the world war, however, to drive the lesson home, for whereas in the early years of the war antiseptic surgery was practiced and open wounds were filled with all manner of tissue destroying chemicals: toward the close of the war wounds were cleansed, debrided and closed. Aseptic surgery had replaced antiseptic surgery in the management of open wounds and with this came an appreciation of other factors than that of bacterial contamination in the healing of wounds.

If in our management of the open wound we keep before us the concept that our goal is healing and functional and morphologic restoration, the requirements for good wound surgery assume their proper relationship. In all of the various steps in the treatment of the wound, we should do nothing that interferes with the natural processes of tissue repair. In no way should we traumatize, irritate or lower the vitality of the living tissues, whose healing we are trying to promote. This principle which is the first law of surgery—above all to do no harm—must guide use in every step of the management of the wound.

What are the requirements of the surgical management of open wounds in the light of our proposed goal of functional restoration? They may be listed as follows:

From the Department of Surgery Northwestern University Medical School and Passavant Memorial Hospital.

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1. To remove contaminating microörganisms and foreign material.
2. To remove obviously non-viable tissues.
3. To avoid additional trauma and irritation.
4. To repair injured tissues and obtain anatomic restoration.
5. To close the wound.
6. To put the part at rest until healing has occurred.

The removal of contaminating microörganisms and foreign bodies must be accomplished before the bacteria have had a chance to proliferate and invade the tissues. Before bacterial proliferation has occurred the wound is merely contaminated and it is possible to cleanse it of the accidentally introduced bacteria. After bacterial proliferation and tissue invasion occur, the wound is infected and the opportunity for cleansing and primary repair has passed. Therefore, if we wish to cleanse the wound of the accidentally introduced organisms, we must do so before infection develops. Experimental evidence and experience with wound surgery have shown that approximately 6 hours are required for bacteria to acclimate themselves to living tissues, they lie on tissue surfaces and are bathed in body fluids, but growth and invasion are in some way retarded. After this period of 6 hours has elapsed, the wound can no longer be considered as merely contaminated, it is now infected and the possibility of ridding it of bacterial invaders is past. This distinction between contamination and infection dominates our concept of wound surgery.

The removal of contaminating bacteria is best accomplished by the simplest and least traumatizing means we have at our disposal—mechanical cleansing with liberal amounts of soap and water. Chemical antiseptics cannot be depended upon to do it. To be efficient as antiseptics they must be protein poisons and as protein poisons they irritate and damage the delicate living tissues whose healing we hope to promote. They give a false sense of security, their brilliant colors cover up dirt and frequently stain tissues beyond recognition, and dependence upon them leads to neglect or incompleteness in the cleansing and excision. They are unnecessary and definitely harmful and their thoughtless and extravagant use has occasioned a tremendous amount of pain and suffering and favored retardation of healing and the development of infection in many wounds which should have healed by primary intention.

The cleansing of the wound with soap and water must be accomplished with the same thor-



Fig. 1. R. K. Laceration and abrasion of forehead, eyebrow, right temporal and parietal regions, of lower lip and chest. Street injury, wounds badly contaminated with street dirt and soil, skin edges crushed and devitalized, especially in scalp. Wounds washed with soap and water, devitalized skin excised and primary closure performed. Irregular crushing and skin loss in scalp necessitated considerable excision and occasioned difficulty in closure. Healing without infection.

A. At time of Injury.

B. & C. 1 month after cleansing and primary repair. Healing without infection.

oughness and care that the surgeon uses in washing his hands previous to an operation. It must not be done perfunctorily as something which must consume a certain number of minutes, but must be carried out thoughtfully and carefully as the most important single step in the care of the wound. It is sufficiently important that the surgeon can seldom relegate it to others but must carry it out himself.

A definite order should be followed in washing the wound. The first step is the cleansing of the surrounding skin. The wound itself is covered with a dry sterile dressing, and the surgeon, wearing sterile rubber gloves, thoroughly scrubs the surrounding skin, taking care that none of the water from the skin gets into the wound. The scrubbing should be done with cotton or washed gauze, not with a brush; liberal amounts of soap and water used, and an ample operative field prepared. After the skin has been cleansed and rinsed, a process which requires from 10-20 minutes, the gauze is removed from the wound which is then thoroughly and gently cleansed with soap and water. Visible foreign bodies are picked out with sterile tissue forceps, and the edges of the wound gently retracted so that every corner of it is properly cleansed. For the final rinsing liberal amounts of warm normal saline solution may be run gently through the wound with an irrigation nozzle or syringe.

The soap and water cleansing, which consumes from 20-40 minutes, if carefully and thoughtfully performed, leaves us with a wound which is surgically clean. It is doubtful if we ever succeed in removing all bacteria from a wound, although unquestionably many wounds are actually free of bacteria at the completion of the cleansing. However, the experiments of Meleney have shown that even the clean operative wound probably contains a few bacteria after the completion of an operation. If given a chance, however, and if not handicapped by chemical and mechanical trauma, living tissues can cope successfully with a minimum of contamination.

The wound having been properly cleansed, badly traumatized and devitalized tissues should be excised. This is the next most important step in the procedure and requires the most careful judgment, since neither should we remove viable and functioning tissue nor should we allow to remain tissues which will become necrotic. Before healing can take place necrotic tissue must either be absorbed or extruded; tissue repair is disturbed and infection frequently supervenes. Complete excision of a wound is rarely possible except in quite superficial injuries involving mainly the skin and subcutaneous tissues and even then, if the face or finger tips are involved excision must be strictly limited to non-viable tissue.

The crushing injury obviously offers a more perplexing problem than does the lacerated wound, more perplexing in that the amount of devitalized tissue is greater, and the delimitation of normal from injured tissue is often very difficult. The crushed tissues are not necessarily entirely dead but their vitality is lowered and with the development of edema and concurrent venous congestion; tissues, which at first appeared to be living undergo necrosis and fall prey to infection. In the badly crushed wound it is necessary to perform a much more radical excision than in the lacerated or incised wound. Excision of the deeper tissues must of necessity be a piece-meal procedure and should be done slowly and cautiously to avoid damage to important nerves, tendons and blood vessels. In wounds of the hand especial care should be taken to avoid injury to important anatomic structures. The most difficulties concerning viability are offered by flaps of skin thrown back or raised from their subcutaneous beds. If necrosis occurs in such a flap even the most perfect nerve, tendon and bone repair is ruined, infection is certain to develop and the purulent granulating surface left by the skin slough may require weeks of care before secondary skin grafting can be done. Our judgment as to the viability of a skin flap is based on an estimate of the amount of crushing which the flap has sustained and the degree of impairment of its blood supply. Severely crushed and abraded flaps of skin, especially if the blood supply has been seriously interfered with are almost certain to become necrotic and must be sacrificed. However, large skin flaps may often be saved if they are not crushed and if the blood supply has not been too seriously damaged, providing infection, edema, venous congestion and hemorrhage do not occur. It is largely a problem of circulation and infection, over both of which factors we have a certain amount of control. By careful cleansing and

gentle handling of the wound we reduce the dangers of infection to a minimum. Hemorrhage and venous congestion may be prevented by careful hemostasis and the application of a pressure dressing. A snug but not too tight pressure dressing, which may be obtained by means of a sea-sponge, will prevent oozing from raw surfaces, discourage venous congestion, and frequently will save a skin flap which would otherwise become necrotic.

After the wound has been carefully cleansed and devitalized tissue excised the repair of injured and divided structures may be accomplished. In doing so, as in all steps of the operation, we must avoid further traumatization of the already injured tissues. Careful and atraumatic surgery are required here as in any type of operative repair, since not only must the tissue cope with the process of healing but often with bacterial invaders as well. Rough retraction, the grasping of large amounts of tissue in large heavy hemostats, the use of heavy coarse suture material and rough tugging and clamping add greatly to the burden which the tissue must bear. Not only is the tissue vitality lowered by such handling but there are left behind numerous areas of necrosis which form excellent media for bacterial growth and seriously interfere with the natural process of repair. A thorough hemostasis should be secured as carefully and atraumatically as possible. The bleeding vessels should be grasped with small hemostats, catching only the vessel itself and ligated with very fine ligatures, the ends of which are cut very short. Firm pressure for a few minutes will frequently control bleeding from freshly cut surfaces while a snug pressure dressing applied after the wound is closed will usually control the post-operative oozing.

In performing the repair of injured tissues a minimal amount of foreign material should be left within the wound. The repair of divided nerves and tendons should be accomplished by means of the finest silk that will hold the divided ends together. Metal plates, screws and pegs should be avoided in the repair of compound fractures. Heavy cat-gut, thick braided silk and kangaroo tendon have no place in the surgical treatment of open wounds.

It is not necessary to go into detail concerning the actual methods of repair of the various tissues. It is my feeling that in the majority of instances primary repair of nerves, tendons, bones and joints can be safely performed provided the patient is seen within six hours of his injury and provided the soap and water cleansing has been faithfully carried out and satisfactory removal of devitalized tissue accomplished. This repair must be done accurately and atraumatically. The injured structures should be handled gently, and with respect. They must not be crushed with heavy hemostats, or tissue forceps, nor should they be repeatedly punctured with large needles and burdened with thick, heavy sutures and large irritating knots. The surgeon who undertakes repair of nerves and tendons and compound fractures should be familiar with this type of surgery and should be adequately prepared to deal with whatever situation presents. Repair of nerves, tendons and open fractures cannot be undertaken in an ill-equipped emergency room, without assistants and without a competent anesthetist. Where for some reason satisfactory repair cannot be carried out, it had best be left undone, the wound should be closed and allowed to heal, and secondary repair undertaken at a later period under more favorable circumstances.

After deep repair has been accomplished the wound should be closed, either by suture or skin graft as soon as it can be done with safety. Far from inviting the development of infection, primary closure is our best insurance against it. The clean operative wound is not left open, neither should the clean traumatic wound be left open, but should be closed as carefully as is an operative incision. The introduction of drains, packs and numerous lengths of rubber tubing into a wound which might have been closed primarily may lead to months of disability, sepsis and irreparable functional loss. If there is doubt as to the thoroughness of the cleansing, if there is question as to whether the wound is surgically clean, if there has been a severe crushing injury and tissue of doubtful vitality and questionable blood supply has been left the surgeon may delay closure for 24 hours. Such a wound may be lightly packed and a delayed primary suture performed the following day.

If because of loss of skin, suture of the wound is not possible, primary closure by means of a skin graft, is indicated. Usually a split graft,

preferably the graft of intermediate thickness of Blair and Brown will answer the purpose. At times a free full thickness graft is applicable, however, the split graft usually meets most requirement. A pedunculated flap may be required in instances in which, because of exposure of tendons, the bed is unsuitable for the application of free grafts. The immediate raising and application of pedunculated flaps, however, even under ideal conditions, is somewhat precarious, and unless we are forced into it the free graft is preferable.

The wound cleansed, debrided, deeper structures repaired and the skin closed, the part should be put at rest until healing occurs. While the value of rest and splinting are never questioned in the case of fractures and dislocations, we too often forget them in the care of soft tissue injuries. Simple rest secured by means of a splint or cast or by putting the patient to bed will hasten recovery and may be the factor which determines whether a wound heals by primary or secondary intention. The necessity for relaxation splinting following suture of nerves and tendons cannot be too strongly emphasized. Suture of nerves and tendons, a procedure, which may require three or four hours of careful work, is entirely ruined if the hand is not properly splinted until firm union has taken place. Intelligent and purposeful splinting is essential to good wound surgery, at times it may be the most difficult part of the procedure and may sorely tax the surgeon's ingenuity.

Resume. In the management of the open wound, every effort should be made to promote healing and functional recovery. Chemical and mechanical damage must be avoided since they retard repair and favor infection. The wound, seen within four to six hours, should be carefully cleansed with soap and water, devitalized tissues excised, deep structures repaired, and the skin defect closed by primary suture or skin graft. Following this the part should be put at rest until healing has taken place.

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DISCUSSION ON PAPERS OF DRS. LOYAL DAVIS, and MICHAEL L. MASON

Dr. Wm. R. Cubbins, Chicago: In discussing Dr. Davis' paper it seems to me that he has made a very important statement in emphasizing the necessity of differentiating between physiologic loss of function and a loss of function due to a complete severance of the cord. There are too many surgeons who are not considering these lesions in this light.

In relation to Dr. Mason's paper, we have carefully studied 95 cases of compound comminuted fractures, in which alternate cases were treated with soap, water and normal solution; the others with various types of antiseptics, particularly iodine. The soap, water and normal salt treatment gave 20% better results, in so far as clean wounds were concerned, than any other antiseptic.

Regarding the tight closure of wounds, it is necessary to differ with Dr. Mason's conclusions. We grant that it may be possible to close firmly a small, compound wound. On the other hand, it is disastrous to close a large compound lacerated wound in the lower extremity in such a fashion that the enormous amount of fluid that is thrown to these parts cannot be extravasated into dry fresh dressings. When this cannot be done, it is extremely common to have the edges of the wound completely necrotic, due to the pressure caused by this fluid; and it is not uncommon where a wound in the lower extremity is closed firmly to have an interference with the circulation. For these reasons, we close our compound wounds loosely with a stitch to about every inch or inch and one-quarter; with frequent changes of dry dressings a maximum capillarity is maintained. When the fluid ceases to be extravasated the dressings are allowed to remain in place until the time arrives for the stitches to be removed.

HYPERVITAMINOSIS-D

ALFRED WILLIAM HUBBARD

MINNEAPOLIS, MINN.

The recent reports on the use of massive doses of vitamin D in arthritis and allergic conditions, prompts this review of the literature pertaining to the possible effects of toxic dosage, vitamin D poisoning and hypervitaminosis-D. It is hoped that this effort will instill a measure of caution in those physicians who do not have adequate facilities for the observation and control of patients suffering from these conditions and in whom a trial of this therapy might be considered.

As is usual, the advocates for any particular type of therapy, this one no exception, extol its virtues but have a tendency toward minimizing any deleterious effects. Animal experiments offer evidence that a span of 4 to 6 years is not enough time to draw competent conclusions as to these effects in the human. Furthermore,

these advocates frequently have the advantage of institutional facilities which provide them with every means for a complete control over the patient so that any undesirable change can be noted and steps taken to offset this where possible. This is not always true of the physician in general practice, who is often the first and sometimes the only one to see these cases, treating them in their homes.

It is also possible that harm may result from indiscriminate vitamin self medication on the part of the laity. Vitamin D preparations of all potencies have been greatly over-emphasized and over-sold to the public. This has been done through every medium of sales and advertising the agile minds of sales counselors can devise. The over-commercialization of these products, which we are only now recognizing as having undesirable qualities along with their beneficent properties, may have most unfortunate repercussions as time goes by.

In the reported work on the toxic effects of vitamin D (Agduhr, Pfannenstiel, Krietman and Moll, Tamman) it was established that this "hypervitaminosis-D" causes extensive abnormal deposits of lime in the arteries, myocardium, lungs, kidneys, stomach and intercostal muscles; the animals suffer from loss of weight with debility, anorexia and diarrhea, finally dying from this condition. The first signs of overdosage (Stepp) in omnivora, appears as a marked hypercalcemia; in herbivora an equally pronounced hyperphosphatemia. Outstanding changes are, namely: rough hide, weight loss and gastrointestinal manifestations. There is a supermineralization of the bones at the outset, finally a decalcification of the subepiphyseal spongiosa with calcium deposits in the various organs, as for instance in the large vessels, heart, kidneys and further to nephritic and uremic symptoms, thought to be due to a toxicosis from proteid disintegration.

Weinman noticed changes in the bones caused by the toxic condition of hypervitaminosis-D. He found a remarkably large number of "osteoblasts" and areas of abnormally heavy calcification in the new formed bone tissues. Collazo and his collaborators observed a marked increase in the new formation of bone leading finally to a complete transformation of the spongious osseous tissues in the epiphyses and other adjacent parts of the diaphyses into compact bone, and in addition, a premature calcification in the proleferative zone of the cartilage with an elimination of the normal osteoid tissue. Schmidtman observed similar changes involving even the complete disappearance of the "Cartilaginous cell columns," also that the bone marrow was hyperemic. In his experiments with excessive doses of vitamin D he also noticed in older animals a transformation of the bones, making them softer and thinner and changing the compact bone into spongious bone tissue. On the other hand Cornbleet and Struck believed that calcium was removed from the skin in scleroderma before any appreciable amounts were removed from the bones and that massive doses of vitamin D produced a balance apparently at the expense of the calcium deposits in the collagen and muscle. Harris and Innes noticed in hypervitaminosis-D a stimulation of the osteogenesis, a very marked calcification of the bones and also—like Schmidtman—a calcium absorption from the bones on excessive overdosage; a condition of osteoporosis with lively "osteoclastic" breaking down of the bone and cessation of further bone growth. The severity of these changes is further increased with an increase of the calcium and phosphorus supply (Harris & Innes), while these changes can be made to subside by a reduction in the amount of these minerals in the diet. Stepp states that under calcium poor, or free feeding, the organic calcification and hypercalcemia are less marked but still evident, which proves that the superfluous blood calcium comes from the bones. As early as 1922 Mouriquand and Michel published a paper in which they gave an account of some experiments with administration of large doses of cod liver oil (2.5 cc. daily) to guinea pigs, whereby these animals died presenting on autopsy, some distinctly scorbutic changes in the bones. Hertz questions their experimental results and it was admitted later by Mouriquand that this deleterious effect of the cod liver oil appears only when the salt content of the diet, especially the calcium content and also the amino-acid content are inadequate.

Another symptom of hypervitaminosis-D is an action upon the fat metabolism as emaciation, lipoid infiltration of the liver, arterial wall and endocrine glands (Collazo). From the hypodermic injection of larger doses of vitamin D local calcification may develop, as a specific effect of the vitamin (Brand, Holtz). In a general way it may be said (Stepp) that the oxi-

dative processes of the organism are increased by physiological quota of vitamin D. That is supported among other things by the observation in animal test feeding of vitamin D, the blood catalase rises, but is lowered by over-dosage (Jusatz). Following vitamin D administration the quotient "carbohydrate/lactic acid" rises in the blood in a like manner. In vitamin D poisoning the decrease of glutathione is looked upon as an expression of a disturbance of oxidative metabolism (Hesse).

Windaus, Von Werder and Luttringhaus point out the presence in irradiated products of a substance called toxisterol and state that it may be of harmful nature far beyond its therapeutic worth. Laquer and Linsert state that toxisterol is present in any product that is irradiated in this way. This is confirmed by Reerink and Van Wijk. Rider and Sperti hold that toxisterol may be filtered out by selective irradiation. Stepp considers that the theory of toxisterol being the only harmful factor erroneous and states that it was found that large doses of vitamin D also showed toxic effects. The pure vitamin D is merely less toxic than the irradiated substances. He further states that the anti-rachitic action of the latter cannot be separated from the toxic effect ascribed to the so-called calcinosis factor. That factor according to Holtz, is measured by toxic marginal doses, and they are that smallest daily dose which under certain conditions produce a reduction of weight or death in test animals, the mouse in this case.

In the cases where a hypervitaminosis-D in man was observed (Stepp), the over-dosage proved itself in anexoria, loss of weight, digestive disturbances and nephritic symptoms. Dreyer and Reed, Farley confirm these findings. Vrtiak and Lang observed nausea in all of their patients on high dosage of vitamin D, Steck, Deutsch, Reed and Struck state that hypervitaminosis-D may produce symptoms of hyperparathyroidism, extensive calcium deposits in various tissues and other pathologic changes, They believe the process is reversible and reparable if administration is discontinued, but neither animal nor human subjects have ever recovered the toxic condition while administration is continued. Hathaway et al, state they had given up to 3,000,000 units of vitamin D daily for short periods to humans. They found that the first manifestation of toxic effects is destruction of individual tissue cells which may appear in any tissue but are probably more numerous in the kidney. Symptoms of toxicity appear at this time. Calcification does not occur until after this stage and first appears in the sites where the cells have been destroyd. They believe cessation of administration of the vitamin allows injuries to be repaired with no deposition of calcium or only a transient deposition that is promptly removed. In any event they counsel its contraindication where there is kidney pathology and in people in advanced years. Wyatt and co-workers believe the presence of a very sensitive colon contraindicates its use. Stepp has found that the toxic dose in animals is one thousand times the curative and states that 40 or several times 100 fold of a therapeutic dose were given for weeks without a disturbance having appeared. The approximate marginal dose from which, by its daily administration for weeks, symptoms arise, amounts to about 200 times the normal dose. According to Bills it seems that the margin between the ordinary and the toxic dose is less for man than the rat. Furthermore, it should be remembered that the rat is able to produce its own vitamin C in the intestinal flora, also by refection its own vitamin B, which leads to the consideration of other factors influencing hypervitaminosis-D.

Wilton has reported a very interesting observation concerning a child who was said to have been submitted to a very excessive overdosage of cod liver oil. In this child Wilton found disturbances in the enchondral ossification with abnormal areas of calcification in the proliferative zone of the cartilage, and also the absorption of the collagen. According to Wilton these disturbances remind a great deal of the changes that may be demonstrated in scurvy, and this leads him to the view that scorbutic changes may be produced in the organism by excessive overdosage of vitamin D.

Westin elaborates this idea to the extent that he claims there must normally be a balance in the organism between the available amount of vitamins C and D. A disturbance of this balance through the administration of toxic doses of vitamin D will therefore bring about the same changes as vitamin C deficiency, i. e., will result in scurvy; conversely the administration of large doses of vitamin C should produce the same

phenomena as vitamin D deficiency, changes corresponding to rickets. Mouriquand and Michel also had observed this antagonism between cod liver oil and the antiscorbutic factor. Hertz believes that these conclusions might probably go too far, but the idea as to there being some kind of interaction between the vitamins is not new.

Höjer shows the toxic changes demonstrated by Agduhr on administration of large doses of cod liver oil are really due to a condition of vitamin B deficiency, which is again responsible for the vitamin A having a toxic effect. Harris and Innes, Moore, observed they thought they were able to ascertain a "vitamin balance" between vitamin D and vitamin B, as massive overdosage would give rise to the same symptoms as are produced by vitamin B deficiency. The supplying simultaneously of the vitamin A and B complex causes the hypervitaminosis to set in later and less intensively, if at all, or would subside if these vitamins were added to toxic administered dosage of vitamin D. The quotient "carbohydrate/lactic acid" which is mentioned as being influenced by vitamin D administration is now shown by Peters to be directly influenced by vitamin B which is necessary for carbohydrate metabolism. Stepp claims the withdrawal of a vitamin from the food, or an excessive administration of a single vitamin, means an alteration of the other vitamins remaining in the nutriment. Thus the phenomena resulting from a lack of vitamin A corresponds in a certain degree to those produced by an over supply of vitamin D, and conversely. There seems to be, then, for the vitamins A and D, a condition of equilibrium which is indispensable for maintaining normal cell formation. This relationship exists not only between the fat soluble vitamins A and D but also between A and the components of the water soluble B complex and vitamin C. Higgins considers that vitamin A is important for proper cell metabolism in the kidney, helping maintain a stable colloid function, preventing pathological depositions. The hypervitaminosis-D causes a disintegration of proteins and becomes antagonistic to vitamin A thereby explaining somewhat the reason for the theory advanced that both proteins and vitamin A deficiencies are factors in the keratinization and calcification in the renal tract. Lee suggests that vitamin F can also be considered an important factor in calcium metabolism because it reduces blood calcium by increasing its diffusion to the tissues and cooperates with D by unloading the blood of its calcium load, probably mainly into the cells which are possibly the greatest consumers of this element in the matured human body. He proposes vitamin F might logically be considered a partial antidote to vitamin D poisoning.

SUMMARY

There is an agreement by numerous investigators that hypervitaminosis D causes cell destruction and calcification which may become involved beyond repair, leading to death.

The factors influencing the severity of the hypervitaminosis-D are; 1. the state of kidney pathology previous to massive vitamin D administration, 2. the presence of a sensitive colon or intolerance to any dosage, 3. the proportionate available supplies of calcium and phosphorous, 4. the proportionate available supply of the vitamins having a cooperative or synergistic action, namely vitamins A and B complex (B_1 and B_2 or G), C and F.

In the absence of better diagnostic aids for the determinations of hypervitaminosis D than an inexperienced patient's self observation of distress, it behooves physicians to use extreme caution in making use of this therapy.

Medical Arts Building.

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DIPHTHERIA PREVENTION—A MUNICIPAL PROBLEM

N. C. Bullock, M. D.
Commissioner of Health
ROCKFORD, ILL.

The problem of diphtheria prevention in the State of Illinois has been left, to a great extent, to the individual city to be worked out to the best of its ability. A number of cities in this State have done a great deal in this respect while others have accomplished little or nothing.

Prior to 1930 diphtheria prevention constituted a minor role in the public health activities of a few cities in the State. Since this time several of the larger cities in the State have adopted diphtheria prevention as a major function in their public health program and their efforts are reflected in the morbidity and mortality records of the State as well as the individual cities. The morbidity rate for the State has been reduced from 218.9 per 100,000 as of 1920 to 33.5 in 1935 while the mortality rate has been reduced for the same period of time from 17.2 per 100,000 to 2.62. The attainment of a few individual cities in the State is even more remarkable than this and will be touched upon later.

In an attempt to evaluate and compare the results obtained with the methods used a questionnaire was sent to the local health officials of 25 cities in the State in order of their population. Such an astounding variety of answers and opinions were received that it becomes difficult to arrive at any definite conclusions.

For example, in answer to a question relative to materials used and the method of injections

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there were received from 16 cities answering the questionnaire the following ten different answers:

Number of Injections	Amount	Material	Interval of Injection
3	1 c.c.	Plain Toxoid	At weekly intervals
3	1 c.c.	Plain Toxoid	2 week intervals
3	1 c.c.	Plain Toxoid	3 week intervals
3	1 c.c.	Plain Toxoid	4 week intervals
2	1 c.c.	Plain Toxoid	1 week intervals
2	1 c.c.	Plain Toxoid	2 week intervals
2	1 c.c.	Plain Toxoid	3 week intervals
1	1 c.c.	Alum Toxoid	.....
2	1 c.c.	Alum Toxoid	1 week intervals
2	1 c.c.	Alum Toxoid	3 week intervals

Some of the cities have changed from one material to another, one or more times, in the past six years while other cities are recommending no particular material or method of injection.

Judging from recent reports from various sources one is impressed with the importance of this one factor in the planning of any diphtheria prevention campaign.

Pansing and Shaffer[1] in a study conducted for the purpose of determining the degree of permanency of alum precipitated toxoid confirmed the findings of Fraser and Halpern[2], of the University of Toronto, Canada, that 3 doses of unmodified toxoid is distinctly better than the response to 1 dose of alum precipitated toxoid. In their study they found that 1 c.c. of alum precipitated toxoid gives an early and high immunity in 28 to 60 days after inoculation, but 57% lost this protection at the end of two years.

The work of Underwood[3], and Parish, Edin, and Wright[4] on the incidence of diphtheria caused by the virulent gravis strain of the diphtheria organism emphasizes the need of striving for the highest level of circulating antitoxin. They show that the usually accepted immunity level to antitoxin is not sufficient to protect against infection with this strain. Therefore, in choosing immunizing procedures it may not be enough simply to choose those that convert a reasonable number of Shick positive children to a Shick negative state.

Shaughnessy[5] very ably discussed this problem in a paper presented at the Illinois Conference of Health Officers in 1935 and stressed the importance of more investigative work along this line.

In attempting to analyze answers received from sixteen cities answering the above mentioned questionnaire it is also difficult to draw conclusions as to the most efficient method of conducting diphtheria prevention campaigns.

In two cities, including the city of Chicago where all the work is being done by the Board of Health, the results obtained have been remarkable while in two other cities using the same method of attack has failed.

Practically the same can be said regarding four other cities which have delegated this responsibility to the organized medical profession.

It is extremely difficult to lay down any hard and fast rules as to the particular type of diphtheria control program which would be best fitted to any individual community for there are too many varying factors which enter into this complex problem to allow us to be too dogmatic. Some of the factors which must be taken into consideration are: 1. The size of the community; 2. The cooperation of local organized medical profession with the health department, the school physician and private public health agencies; 3. The efficiency and financial backing of local public health organizations; 4. Public Health Nursing facilities; and 5. The type of community with which one is dealing.

Specific examples of what has been accomplished by certain communities may be of material assistance to us in formulating a diphtheria program for our own community.

The City of Detroit with a population of a million and a half has been very successful, under the Vaughan plan, in immunizing a high percentage of their children. The Vaughan plan has probably received more favorable publicity than any other now in existence. Under this plan the family physician-patient relationship is maintained to the fullest extent. The private physician is schooled in the methods of preventive medicine and in turn is remunerated by the Board of Health for inoculations they give to the indigent.

In a recent paper on Administrative Technics, Dr. Vaughan[6] states: "In the City of Detroit, all diphtheria prevention treatments are being given by the family physician and three-fourths of these are paid for by the parent. Sixty per cent. of Detroit's preschool children are now known to have received this protection."

Besides attaining its purpose in the control of diphtheria this scheme has been of inestimable value to the city of Detroit in making their physicians more public health minded not only

in matters pertaining to diphtheria but other phases of preventive medicine as well.

The City of Chicago failed in their plan of leaving diphtheria immunization in the hands of the organized medical profession so the Board of Health in 1931 took over this work. According to Bundesen, Fishbein and Niblack[7] very little if anything was accomplished in reducing the diphtheria case rate prior to 1931. The principal difficulty seemed to be in getting parents to take their children to their family doctor to have them immunized. Following this date the Chicago Board of Health assumed the full responsibility of diphtheria control. The case rate dropped from an average of 150 per 100,000 population to less than 5 per 100,000 in 1933.

Since 1933, however, the morbidity and mortality rates from diphtheria in Chicago have been steadily on the increase. An analysis of Chicago's diphtheria figures by Dr. Bundesen in October, 1935, reveals that of 674 cases occurring in 1934 and the first eight months of 1935, four hundred and sixteen of the cases, 61% occurred in children who had previously been inoculated against diphtheria. Following this experience the Chicago Board of Health has changed from its former practice of giving one dose of alum toxoid or two doses of plain toxoid and are at the present time giving plain toxoid in three doses of 1 c.c. each, one month apart.

Such an experience as this is regrettable and would be a serious handicap to any city of smaller population. In any event information such as this becomes treasured ammunition in the hands of the anti-vivisectionist and the faith healers of our country.

The City of Evanston has made an enviable record in their diphtheria control work in the past six years. Local civic, educational, and professional organizations have coordinated in making their program so successful that a period of thirty consecutive months passed without a single case of diphtheria. Dr. Pollard estimates that 50% of their inoculations are being done by the private physicians and the remainder by the Health Department.

Had it not been for a minor epidemic of twenty-four cases of diphtheria which occurred in 1934 Evanston would undoubtedly head the list of cities in Illinois having the lowest total case rate since 1930.

The City of Rockford presents an example of what may be accomplished by close cooperation between its Health Department and organized medicine. It presents a fine example of what may be accomplished through the physician-patient relationship or the immunization of individuals as against mass immunization.

In the fall of 1930 the Winnebago County Medical Society appointed a committee from its members to study the problem of diphtheria control in the City of Rockford and to formulate a program which might be applicable for this purpose.

The recommendations presented to the Medical Society, by the Committee, were gathered from similar campaigns conducted by other cities throughout the country. These recommendations which were to form the foundation for an intensive campaign in 1931 and each succeeding year since that time are familiar to everyone.

It is not my intention to burden you with minute detail regarding our policies but rather to point out salient features, both favorable and objectionable which may be of some value.

The first and most favorable feature is based upon the fact that the program was initiated, sponsored, directed and financed by the members of the County Medical Society. The City Health Department and the school physician offered their assistance and their whole hearted cooperation in every respect.

The entire responsibility for the success or failure of this venture was placed in the hands of the Medical Society. Consequently every active member did his utmost to assure its success. With the country on the threshold of socialized medicine, the medical society could not afford a failure for then social and governmental agencies would have sufficient reason for stepping in and doing the job as they thought it should be done.

Recommendations were adopted by the medical society that no inoculations were to be done by the Health Department, the Public Schools, or other clinics. All diphtheria immunizations were to be done by the family physician in his private office. Fees for inoculations were reduced to a minimum and people unable to pay a fee were immunized free of charge by the family doctor.

The second most favorable feature of our program consisted of a standard procedure of immunization. With the exception of the first

year when toxin-antitoxin was used as the immunizing agent we have adhered to the recommendation that three doses of plain toxoid be given in 1 c.c. amounts at intervals of two weeks. Woodward[8] of Rockford presented a paper before this section of the Illinois State Medical Society in 1934 in which he points out the reliability of this method of diphtheria immunization and so far it has proved dependable. To date we have not had a case of diphtheria occurring in a previously immunized child.

During the past few years most every physician has been called upon one or more times to give talks to Parent Teachers Associations, Mother Study groups, and over the radio, on the subject of diphtheria prevention. In this way it is felt that every doctor is taking an active part in the campaign. These same doctors have all gathered statistics on diphtheria morbidity and mortality and have given considerable study to the subject. As a result the active physicians of Rockford have become well informed and enthused in an important public health program.

Now instead of waiting for the annual campaign most physicians are persuading mothers to have their infants immunized between the 9th and 12th months of life. Our diphtheria prevention program is in fact taking on an aspect of a year around campaign. We still feel it is advisable though to continue a short publicity campaign each year if for no other reason than to remind ourselves, as well as the public, that to falter in our efforts will spell defeat.

There seems to be an increasing appreciation on the part of parents in Rockford that preventive medicine is a purchasable commodity and that when the family purse will permit, it should be purchased the same as any other essential of life, such as food, fuel, or shelter.

The following table statistically reflects the accomplishments of our efforts in diphtheria prevention:

YEARS	CASES	DEATHS
1929	93	5
1930	96	8
	CAMPAIGN STARTED	
1931	24	0
1932	17	0
1933	8	0
1934	5	1
1935	5	0
1936	3	2

The above figures become more impressive when compared with the number of cases of diphtheria in Rockford in the previous ten years. From 1921 to 1931 the average number of cases per year was 78 as compared with 10.3 for the past 6 years.

The main objectionable feature to Rockford's plan is the lack of reliable information that we possess relative to the number of children we may have immunized at any time. One may, with a fair degree of accuracy, determine the percentage of school children who have been inoculated without entailing too great an expense but to gather this information from our preschool child population would mean a house to house canvass. This the City of Rockford has never done and consequently we may be laboring under false impressions and wake up some time with a severe outbreak of diphtheria to deal with.

In concluding I would say that the problem of diphtheria prevention in any community is one unto itself which must be worked out carefully and diligently taking all prevailing factors into consideration but with the purpose in view of a long range program in which there is perfect harmony between all participants.

Smaller communities will do well in adhering to well established and long proven methods of active immunization and allow the larger metropolitan centers and institutions to do the pioneer investigative work with the newer immunizing agents.

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DISCUSSION

Dr. Winston H. Tucker, Springfield: I wish to congratulate both Dr. Bullock and Dr. Miller on their excellent papers. The problem of diphtheria immunization has given those of us in the State Department of Health considerable concern at times. Dr. Bullock has convinced us that physicians will cooperate wholeheartedly in diphtheria immunization programs if they are approached in the proper manner. The chief defect in both of these programs, as I see it, is the failure to get adequate records as to

the number of children who were included in the program, to be classified by age, sex and color. Any municipality that has a full-time health officer can get complete records by developing a card index and follow-up system in order to get the physicians to turn in to the health department a record of every child who is immunized. Complete records are essential to effective public health work.

Now just a word in regard to the amount and kind of material to be used when conducting diphtheria control programs. In May, 1935, Dr. Nettie Dorris, a District Health Superintendent on our staff, and I made a Schick test survey in her district of a thousand children who had received one dose of alum precipitated toxoid, and a second thousand children who had received three doses of plain toxoid, about six months previously. We found some very marked differences in the results; about 75% of the children who had received one dose of alum precipitated toxoid were Schick negative, while 95% of those who had received three doses of plain toxoid were Shick negative. These findings led the State Department of Health immediately to go on record as being in favor of injecting three doses of 1 c.c. each of plain toxoid or two doses of 1 c.c. each of alum precipitated toxoid for diphtheria immunization. It is our feeling that one dose of alum precipitated toxoid is not enough to protect children against diphtheria; they do not develop enough antitoxin. If we were to indicate a preference as to which preparation to use, we would advise three doses of plain toxoid in preference to two doses of alum precipitated. We find a three week interval between injections to be most suitable. It is the interval most commonly used in Canada and in the states in this country doing the best work in diphtheria prevention.

In regard to the follow-up Schick test, one child in ten or twenty fails to develop a negative Schick test with the recommended doses of toxoid. We suggest that a follow-up Schick test be made in every child six months after he receives the toxoid. Some of you carry out the test at three, four or five months intervals after administration of the toxoid, but we recommend six months as the standard administrative procedure. We find it to be most satisfactory. A follow-up Schick test will locate the small number of children who were not successfully immunized, and the usual injections of toxoid should be repeated. The diphtheria problem in Illinois at the present time is in children who have received toxoid at some time or other, but who never had a follow-up Schick test to determine if the procedure had been successful. They were not successfully immunized the first time, but the parents thought the children were protected. Therefore a follow-up Schick test is essential in protecting all children against diphtheria.

As you know, the Illinois Department of Health distributes plain and alum precipitated toxoid, as well as Schick test material, free of local cost to physicians in this state. With the development of a full-time health department the problem of keeping complete records may be solved here in Peoria in the near future. A well-rounded program can be developed which will make it possible to keep adequate records, not only on diphtheria immunization programs, but on all other health programs as well.

Dr. I. D. Rawlings, Chicago: I think it was in December, 1932, that the State Department of Public Health had their annual conference in Springfield and Dr. Harrison of the Public Health Service stressed that the spacing for toxoid inoculations should be at least three weeks apart. I went back to Chicago from that meeting and urged them to space their work at three weeks' intervals. They consulted Dr. Tonney and wrote to Dr. Park, of New York—and everybody in the country was following Park—and they said, no, for administrative purposes it is best to follow the spacing plan of one week apart. And against the advice of the State Health Department that plan was followed there and you heard the result. We tested out that short spacing of weekly intervals but the results did not hold up. That is one point Dr. Bullock did not bring out sufficiently, I think; that is, spacing toxoid inoculations properly. At the present time, Chicago is using injections of three doses of toxoid with a month interval between each dose. They are following practically the Toronto plan. I understand Detroit now is also using this same plan.

Dr. C. H. Benning, Peoria: I just want to make a few remarks relative to one shot of alum precipitated toxoid. I am from Michigan and have engage in this diphtheria immunization work since 1924. We used three shots of toxin-antitoxin and used four shots of toxin-antitoxin and used three shots of toxoid and two shots of toxoid, and finally in 1931 the State Department of Health recommended one shot of alum precipitated toxoid. Now, the possible antigenic value of the toxoid used in the various States, put up by the various drug concerns, might make a difference. The State of Michigan puts out its own toxoid and we feel the results we get prove that one shot of toxoid as a public health measure was ample to reduce diphtheria to almost the vanishing point. In the territory in which I was, with a population of eighty thousand people, for the last two years before I came here in 1936, we used one shot of toxoid and we did not have a single case of diphtheria in my territory. Now, that might have been luck. But, when I went there six years before we had an average of 45 to 50 cases each year and after a period of four years it was reduced down to two or three cases. I feel, where you have a large number of children to immunize, there is the advisability as a public health administrative procedure to get as many immunized as possible. One shot of toxoid may not immunize 98% but, if you immunize 80% or 85% of your children under ten years of age, you will never have any diphtheria epidemics in any community.

Dr. John J. McShane, Springfield: I do not wish to argue as to the value of alum toxoid but I think one point that Dr. Benning brought out should be clarified. Years ago when the Illinois Department

of Public Health started to distribute alum toxoid, if I am correctly informed, it contained from 4% to 9% alum, depending upon the manufacturer.

At the present time, the alum toxoid contains only 0.8 to 1.2% alum. The reason for the deduction in the alum content in the toxoid was due to the fact that where alum toxoid contained large amounts of alum, many sterile abscesses resulted and as a consequence would deter immunization programs. However, since the alum has been reduced in the toxoid and studies have been made as to its immunizing qualities, we find that one dose of alum toxoid will not immunize more than 65% of persons. As a result, the recommendation of the department is that two doses be given three weeks apart or three doses of the straight toxoid three weeks apart. From studies made on three doses, we find that 90% to 95% are rendered immune.

In discussing Dr. Miller's paper, I wish to state that I do not think he was quite fair to himself. He did not state that the cases of diphtheria, which resulted in fourteen deaths, were due possibly to the gravis type of diphtheria—the most virulent type of diphtheria organism known. Dr. Shaughnessy of our Department, who cultured a number of cases, found the gravis type, and unless such cases receive antitoxin early and in large doses, the mortality rate is very high.

Dr. George H. Stacy, Peoria: I will not enter into a discussion as to whether a child should have one or two shots; but the idea that I would like to contribute—and we got it yesterday when Dr. Needham presented his paper on the smallpox epidemic,—is that the procedure can be applied to the control of diphtheria as well as to that of smallpox. We all recognize that untreated diphtheria is a killer, either by strangulation or paralysis. That is common knowledge. The time for its prevention is beforehand. Once established in the child, there is at least some degree of uncertainty as to the outcome, especially when diagnosis has been delayed or frustrated. Every father and mother should be by all means told that diphtheria kills, and how, and then told that it may be prevented, and how easily. Every school child, we believe, is entitled to have a personal card to take care of the records of diphtheria and other prophylaxes, finger print identification and a personal record of diseases, accidents, injuries and operations. That personal card, we believe, should move through the grades with the pupil. An entire room can be tabulated on a single sheet, thereby giving a gross health picture of that particular room. The pupil's name, address, date of birth and place of birth, identification by preschool finger prints and later elementary school out into the world, for identification purposes, should be entered on this card; also physical examinations of the child and recommendations, diseases and disorders, such as measles, mumps, whooping-cough, smallpox, diphtheria, and the date and nature of immunizations, schools attended, the teachers' signatures.

In talking with Dr. Shaughnessy, he suggested it might be a very good idea if this were done eventually, and this record should either stay in the school or go with the pupil, after he has finished the elementary schools, and even used in after life in industry This record would be available either in the school or it would be among the private papers of that particular individual. And, if it were left in the files, a photostatic copy might be sufficient. Such a one sheet picture of the immunization and the health and safety record of the child, we believe, would be valuable.

Dr. Bullock (in closing): I haven't anything further to say except, as Dr. Tucker has said, in doing individual immunization as against mass immunization by the health department, the important thing is to know how many children we have immunized at one time, and our system has failed in that respect. I learned just a few days ago of the system that one city has employed which is working out very satisfactorily; that city makes an appropriation to pay the physician a fee of twenty-five cents for every immunization that he reports back to the health department; and, instead of making an appropriation for a house-to-house canvass to see how many children are immunized, the doctor gets twenty-five cents for each case that he turns into the health department, and it seems to work out very satisfactorily.

THE CONTROL OF SMALLPOX IN AN UNVACCINATED SCHOOL POPULATION

FRANK S. NEEDHAM, M. D.
Commissioner of Health
OAK PARK, ILLINOIS

The Village of Oak Park is a city-bound community of 70,000 population located in Cook County. It adjoins the City of Chicago on the north and east, Cicero and Berwyn on the south, and, on the west, the cities of Forest Park and River Forest which further join on their west the cities of Maywood, Melrose Park and Bellwood.

Late in November, 1935, smallpox was reported in Bellwood and soon spread to Melrose Park, Maywood, Forest Park and Berwyn. Realizing the close proximity of these neighboring towns, which were all less than five miles distant, every effort was made to avoid exposure from contacts. Inter-mural school athletics with these towns was prohibited during the prevalence of this disease. There were 50 cases reported in Maywood, 11 cases in Melrose Park, 3 in Forest Park and 14 in Berwyn.

A survey of our school population showed a total of about 13,000 children, of which the grade

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schools had an enrollment of 6,752 pupils with approximately 70 per cent. unvaccinated children. The Oak Park and River Forest Township High School had, at that time, an enrollment of 3,854 pupils, 1,794 girls and 2,060 boys. Of the 1,794 girls only 142 had ever been successfully vaccinated, and of 2,060 boys only 1,071 had been vaccinated. Including the parochial and private schools we had a total unvaccinated school population of more than 65%.

During the past four years a personal letter has been sent from the Commissioner of Health to the mother of each baby born in Oak Park, within thirty days of its birth, advising the mother that her child should be protected against smallpox and diphtheria before it is one year of age.

DEPARTMENT OF HEALTH
Oak Park, Illinois

Mrs. Jane Doe,
Oak Park, Illinois.
My dear Mrs. Doe:—

The certificate of birth of your son, ———(Name)———, born ———(Date)———, at ———(Hospital)——— has been received and properly registered, No. —?—, for the year 19—, in this Department. Should it become necessary for you to have a certified copy, it may be obtained at this office at any time as these records are a part of our permanent file.

This Department feels justly proud of our hospitals and community and we believe that we have exceptional conditions for guarding the health and safety of our children. We shall continue to use our best efforts to maintain our high standards but this can only be accomplished through the cooperation of the parents and physicians.

Your little son, ———(Name)———, should be fully protected against Diphtheria and Smallpox before he is one year of age. Both of these diseases are preventable and Doctor ————, will advise you in this matter, regarding the proper time for the treatment. Duplicate certificates are enclosed which your doctor will sign and return to this Department after your child has been properly protected. The duplicate will be sealed by this Department and returned to you for future reference.

Trusting that ———(Name)——— may enjoy good health and escape the preventable diseases, I am

Very truly yours,
Frank S. Needham, M. D.,
Commissioner of Health.

For several years this Department has prepared and sent a notice to the parents and guardians which places the responsibility upon the parent or householder for reporting cases of suspected cases of contagious disease to the local Health Department. This notice is distributed through the schools to all pupils below the sixth grade and is enclosed with the September report card.

OAK PARK DEPARTMENT OF HEALTH

To Parents and Guardians:

The rules and regulations of the Illinois State Department of Health, for the prevention and control of communicable diseases, provide that, when a physician is not in attendance, the *parents* or *householder* must report to the Local Departmeot of Health all cases or suspected cases, some of which are as follows:

Chicken Pox	*Infantile Paralysis*	*Scarlet Fever*
Diphtheria	*Measles*	*Small Pox*
German Measles	*Mumps*	*Whooping Cough*

A child who haa an acute cold, cough, fever, *sore throat or rash*, should be kept at home and isolated from all other children until it is definitely known that such is not a commuoicable disease.

Diphtheria and Small Pox are preventable diseases, immuoity should be produced before the child is one year old. A Schick test will determine whether your child is susceptible to diphtheria.

The safety and welfare of your children depends upon your cooperation.

FRANK S. NEEDHAM, M.D.,
Commissioner of Health.

September 1, 1936.

No pupil who has been quarantined for a contagious disease or on account of exposure to same is re-admitted to school without an official release from the Department of Health.

Department of Health, Village of Oak Park
MUNICIPAL BUILDING
Telephone: Euclid 3
Oak Park, Ill., ... 193...

Name of Pupil .....
Address .....
who has ben quarantined on account of .....
exposure, is now relieved from restrictions and has permission to re-enter school.

.....
Health Officer.

Form 601. 5-36. 3M.

A survey of the first grade pupils of all grade schools, during the past three years, showed about 70% unvaccinated. After this outbreak a new survey revealed only 18% unvaccinated.

Oak Park has many conscientious objectors to vaccination, others who belong to a faith that does not, as a rule, approve of medical aid, and, still others who place their confidence in irregular practitioners who have their own methods by "internal vaccination" or no vaccination at all. And we are all familiar with that organization that always comes forward with literature, etc., condemning vaccination as a source of spreading syphilis and cancer and advising people not to submit to vaccination.

Sixteen years ago an outbreak of smallpox occurred in Oak Park with about forty cases, with no deaths, and, since that time, there had been a total of 11 cases evenly distributed throughout the years.

Contact exposures occurring in Oak Park during the months of December, January and February were quarantined or promptly vaccinated

and no recognized cases developed until early in the month of March. March 9 a case of smallpox was recognized and reported. This boy attended the Fenwick High School, but, as he had not attended school since before the onset of the disease, this school was not considered exposed although an order was issued that all pupils who had not been previously vaccinated should be kept under daily observation by a physician assigned to the school. Four days later, March 13, three cases were discovered who had been in the Ascension grade school in the eruptive stage. All pupils and others employed about the Ascension School, who had not been vaccinated during the past five years, were ordered quarantined at their homes for sixteen days, until March 29. On March 13, the Oak Park and River Forest Township High School had a direct exposure from two cases who were in school in the eruptive stage. A special meeting of the Board of Health was again called and all pupils and employees of the high school were sent home at noon, March 14, 1936, with instructions to report the following morning with their certificates showing a successful vaccination against smallpox within the past five years. At the opening of school the next day 2,500 pupils were excluded and ordered quarantined at their homes for a period of sixteen days from the date of this exposure. An announcement by the Board of Health ordering the following quarantine regulations was published in the local paper:

"All teachers, pupils and employees who have been successfully vaccinated by an external vaccination within the past five years are considered immune and relieved from all restrictions. All teachers, pupils and employees who have had smallpox are also relieved of all restrictions.

"All teachers, pupils and employees who were vaccinated longer than five years ago and have been re-vaccinated since March 9th may go about their usual duties under observation.

"All teachers, pupils and employees who were not successfully vaccinated before March 9, 1936, will be quarantined at their homes until March 25, 1936."

(Signed) Dr. Frank S. Needham,
Commissioner of Health,
Village of Oak Park.

All other schools were in regular session. Extraordinary precautions were taken and examinations of all school pupils by school nurses and doctors were made daily.

All cases of reported chickenpox, of which an epidemic was prevalent at that time, were carefully re-checked by the Health Department. Also all suspicious eruptions and rashes were investigated. The confidence and co-operation of the local physicians was readily gained, and, through the Oak Park and River Forest Physicians' Club, arragements were made so that all physicians would vaccinate, without charge, any person unable to pay for vaccination. Free vaccine was distributed from the Health Department to all physicians making application for the same. A group of physicians was employed to vaccinate at the Health Department, without charge, those unable to pay for the same. Widespread publicity was given to the prevalence of smallpox in Oak Park through newspapers, talks to the Parent-Teacher Associations and local service clubs. Contact was made with all the larger stores, parent-teacher groups, business houses and dairies to insure that they had had no employees who had not been vaccinated, advising them what it would mean should smallpox develop in their place of business. As usual, much objection was made by conscientious objectors, irregular practitioners and organizations opposed to vaccination. However, the work of vaccinating progressed uninterruptedly. Over 20,000 smallpox vaccines were distributed by the Health Department and it was estimated that more than 25,000 vaccinations were made.

In less than two weeks the Department report showed that the outbreak was well under control with only seventeen cases of smallpox reported and quarantined. Release notices of quarantine were published as follows: On March 25, 1936, announcement was made by the Health Department in the local papers that "all persons who were quarantined because of small pox exposure at the Oak Park high school on March 9, 1936, who do not reside on premises now quarantined for smallpox or who do not have symptoms of this disease, are hereby relieved from quarantine restrictions and may continue their usual duties."

Later, after the opening of school, seven more cases were discovered without any further exposure to the school system. The last case, which was reported on May 1, 1936, was discovered in the ninth day of the disease.

On careful investigation it was discovered that three cases of smallpox had been reported as chickenpox. A case, discovered March 19, gave a history of a brother who was a third year high

school pupil who had left home March 11 in the pustular stage of the disease for a hitch-hiking expedition throughout the Southwest. He was heard from in Tennessee and Texas but was unable to be contacted.

This outbreak was limited to 24 cases, four of which were subsequent cases in homes already quarantined.

With the exception of one case, which was removed by this Department to the Chicago Isolation Hospital, all of the smallpox cases were quarantined at their homes. None of these cases of small pox, which were reported, investigated and verified, had ever been successfully vaccinated and no deaths occurred during this outbreak.

This outbreak was practically confined to the Oak Park high school with a total of sixteen cases.

The first case, diagnosed as chickenpox, of which the source of exposure could not be obtained, was undoubtedly the source of exposure to the three cases in the Ascension School and the one in the Fenwick high school, who were intimately associated, and, also to the exposure of the Oak Park high school.

A very careful supervision at the high school on admittance of absentees prevented four additional exposures as they were discovered before being admitted to school.

A survey of the school population six months after this outbreak showed about 85% of the pupils vaccinated.

Credit for the control of this epidemic may be given to the Village officials, High School and Grade School Boards, the physicians and the business men of the community who co-operated so wholeheartedly in this matter.

CONCLUSIONS

1. Inasmuch as our vaccinal laws are such that compulsory vaccinations cannot be properly enforced, it is necessary that we know quite definitely the vaccination status of the school population.

2. That all cases of chickenpox, whether adult or not, should be carefully investigated.

3. That, when smallpox is prevalent, all suspicious rashes and eruptions should be investigated.

4. That all contacts should be promptly investigated, vaccinated and kept under observation for the full period of incubation, sixteen days, and that all primaries should be quarantined and kept under observation for eighteen days.

5. Whenever smallpox is prevalent in a community, prompt publicity should be given to the same.

6. Confidence and the fullest co-operation of the medical profession must be gained at the onset to avoid friction and to obtain the support of local physicians which is necessary to cope with the situation.

7. The respect, confidence and co-operation of parents must be maintained at all times but more especially emphasized during an epidemic of any type.

DISCUSSION

Isaac D. Rawlings, M. D., Chief Bureau of Communicable Diseases, Chicago Board of Health: We must congratulate Dr. Needham on the prompt, aggressive and efficient handling of a difficult, threatening and potentially dangerous situation. An outbreak of smallpox in any school or other unit of a population which is less than 50% protected by vaccination against smallpox may prove serious. That Dr. Needham was successful in speedily stamping out this outbreak in so short a period is conclusive evidence that he used approved and efficient methods.

The especial thanks of the speaker is due Dr. Needham for the spendid cooperation given the Chicago Board of Health by permitting a representative of the Communicable Disease Bureau to obtain a list of each person living or working in Chicago who had been exposed to any Oak Park case of smallpox. These exposures in Chicago were vaccinated and quarantined and visited every other day to make sure no unknown outbreak occurred in Chicago. No one could have done a better job than Dr. Needham did under existing conditions. We must agree also with Dr. Needham's conclusions.

The point in the paper which I wish particularly to discuss is the inference that because of the absence of a compulsory vaccination law, the health officer in spite of his best efforts in contacting and urging parents to get their children vaccinated, and even with the full cooperation of the local medical practitioners is powerless to keep the school and other units of the population reasonably protected against smallpox by vaccination. This plan of putting the responsibility for vaccination squarely on the parents, with repeated urging that they get their children protected, is the usual and popular method in many health jurisdictions in Illinois. A local epidemic of smallpox occurs and under the scare and pressure during the outbreak about 60 to 70% of the school population become protected and the epidemic soon ends. Then, in the absence of smallpox over a period of years, vaccination is neglected by parents in spite of the urging of the local health officer. After a period of 8 to 16 years the well vaccinated population has changed to a population in

which the preschool and school population is only 15 to 30% vaccinated. Then along comes another outbreak and the population again becomes 70 to 85% vaccinated. That is what occurred in Oak Park and is occurring each year at points in Illinois and in many other states.

Chicago formerly handled smallpox and vaccination campaigns in that way. An epidemic in 1864 was followed by few smallpox cases and much neglect of vaccination. Then another epidemic occurred in 1872-1873, followed against by few smallpox cases with resulting neglect of vaccination, and still another extensive epidemic took place in 1881-1882. Again few cases resulted, with neglect once more of vaccination. Then came the epidemic in 1894 and 1895, following Chicago's World's Fair, with over 2300 reported cases of smallpox and over 1000 deaths during 1894. To stop that epidemic it was necessary to do wholesale vaccinations. In one month over half a million free vaccinations were made and during the year 1894, over a million free vaccinations were performed at an enormous financial outlay in a population of 1,600,000. That horrible experience taught Chicago that it was far beter to prevent smallpox systematically by yearly vaccinations than to have to fight extensive periodical outbreaks.

Since 1894 and 1895, Chicago has never had a smallpox outbreak approximating in any year one-half as many cases in proportion to its population as Dr. Needham has described. Our plan to keep our population fairly well vaccinated is to perform an average of more vaccinations against smallpox each year than we have births for that year.

The following table illustrates this plan:

Year	Total births	Total B. of H. vacinations	Total vaccine tubes distributed	Total smallpox cases
1932	49,258	90,189	100,245	11
1933	46,655	117,049	177,690	8
1934	47,955	52,038	118,500	0
1935	49,425	46,793	100,500	1
1936	47,939	68.788	143,650	12
Total	241,232	374,857	640,585	32
5 year average	48,246	74,971	128,117	6.4

These figures show that for this five year period there is an average of 26,725 more vaccinations each year than there are recorded births. Note also that the vaccine tubes distributed averaged each year 53,145 more than the yearly average vaccinations performed by the Board of Health. The 53,145 vaccine tubes distributed annually in excess of those used by the Board of Health represent the vaccine distributed to physicians and presumably represents the approximate number of vaccinations done by private physicians yearly in excess of those performed by the Board of Health.

Smallpox cases recorded in Chicago in 1936 totaled 12 with no deaths. When we remember Dr. Needham's statement that smallpox was epidemic not only in Oak Park but also in several other Cook County communities on our west and that most of the 12 cases were traceable to direct or indirect contact with known cases, originating outside of Chicago, it is a fine tribute to the efficiency of the Bureau that this disease was kept from reaching epidemic proportions in Chicago.

With smallpox threatening in the metropolitan area of Chicago on our west, the Bureau undertook extensive precautionary vaccination. This included distribution of request cards to all pupils in the schools along the western border, that is, between west 33rd street and Belmont avenue, urging each to go to his family physician. If the family signed the request for the Board of Health to do this vaccination, it was done by the school health officer. Each manager of the 30 factories and industries in this area was visited and told of the smallpox cases on the west and urged, for the protection of the business, to have all employes vaccinated by their family physician or the firm's doctor; and a recheck was made ten days later by the Board of Health to see what was done. If nothing was done, the Board of Health offered to do these vaccinations. Others approached included the transportation lines, the management of theaters, all chain-stores, State street stores, and other firms with branches located in this area. Not one Chicago case of smallpox had its source traced to Oak Park, thanks to the splendid cooperation given us by Dr. Needham. However, two and posibly three cases were traced to Maywood and one to Melrose Park.

In conclusion we may say that Chicago, through having its schools and other units of population well vaccinated, plus the special vaccinations in the area threatened, and the vaccination and close control of known exposures, was able to prevent the development of a single case of smallpox from the Oak Park outbreak. Had Chicago had as many cases of smallpox as Oak Park in proportion to its population, in 1936 there would have been 1,200 instead of 12 cases of smallpox.

THE TREATMENT OF NONCONVULSIVE TOXEMIA OF PREGNANCY AT THE CHICAGO LYING-IN HOSPITAL

William J. Dieckmann, B. S., M. D.

CHICAGO

The term "toxemia of pregnancy" always suggests the patient with high blood pressure, albuminuria, edema and especially the occurrence of convulsions. Statistics collected from hospitals in various parts of the U. S. indicate that the incidence of eclampsia is 0.583% with a mortality of 13.06% and of nonconvulsive toxemia is 4.39% with a mortality of 1.68%. During the past five years 13,735 patients have

From the Department of Obstetrics and Gynecology, The University of Chicago and The Chicago Lying-in Hospital.

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been delivered in the hospital. There were 50 patients (0.36%) who had convulsions and over 1000 (7.28%) who had toxemia but no convulsions or coma. There were many more in whom the symptoms either subsided before admission to the hospital or were of so mild a nature that they escaped diagnosis by the staff. From these figures it is obvious that the number of patients who do not have eclampsia far outnumbers those who do. Because of this fact I shall describe the method of treatment used in the toxemia clinic of the hospital for the ambulatory type of patient and also that used when the patient's condition requires hospitalization.

Within the past few years various statements have been made relative to the value of prenatal care. One was that prenatal care is of no value. We are just reviewing all of our toxemia cases and it is obvious that prenatal care is of value if the physician properly interprets the various symptoms and signs. Another statement which has been made is that proper care at the time of delivery is of more value than prenatal care. This is only partly true because, although proper obstetric care at delivery will in almost all instances save the patient's life and quite often that of the baby, irremediable injury may have occurred to the mother with the resultant decrease in her life expectancy.

Edema. This is the most frequent finding in pregnancy and quite often it is difficult to decide if the edema is that of normal pregnancy or if it is caused by a beginning toxemia. We have found that periodic weights are of far more importance than watching for pitting edema of the ankles. We watch not only the total weight gain but pay particular attention to the rapidity of gain. In normal pregnancy the average gain should be 21 pounds. Any gain over this figure should be regarded with suspicion because it may be due to retention of water. We regard a gain of more than 1.5 pounds per week as definite evidence of retention of water. It is our belief that true pregnancy toxemia or pre-eclampsia usually begins first with this invisible retention of water which as a rule eventually becomes recognizable as pitting edema of the extremities.

Hypertension. Many patients show evidence of hypertension when first seen. This is usually due to excitement. The first trimester of pregnancy is characterized by a decrease in blood pressure, but at term there has usually been a 15 to 20 mm. increase in systolic pressure. We regard a systolic of 130 to 139 with suspicion, and diagnose it as abnormal if it is 140 or more on two or more occasions. We no longer use the term chronic nephritis for this group of patients who have primarily hypertension in pregnancy. We believe that the majority of patients with hypertension have an essential or primary hypertension. In many instances pregnancy has stimulated an increase in blood pressure where there was a predisposition to it, rather than been the actual cause of the hypertension. This has been particularly demonstrated by the ice water test in which a number of patients were tested early in pregnancy and two-thirds of those who gave an abnormal response with a normal blood pressure at that time subsequently showed evidence of toxemia.

Proteinuria. The occurrence of protein in the urine has always been regarded with suspicion in pregnancy. There is a minimal amount of protein excreted by the normal individual. When the proteinuria can be detected with the heat and acetic acid or sulphosalicylic acid, it is abnormal in amount. It has been our experience that if the patient has a persistent proteinuria she should have a thorough examination of urine and blood to determine its cause, but as long as the total amount of protein for 24 hours is less than 3 Gm. one need not be concerned about its effect on the pregnancy.

Symptoms. The onset of the various cerebral, visual, gastro-intestinal, and renal symptoms in the patient who has shown excessive gain in weight or edema should always be regarded with gravity because they usually are the precursors of convulsions.

Treatment. — Ambulatory patients. They should be seen every two weeks before the 30th week of pregnancy and every week after that. The fetal mortality at viability, or 28 weeks, is so high that we attempt to carry the patient to at least 32 weeks and preferably 34 to 36 before terminating the pregnancy. In a subsequent paragraph we outline criteria which would warrant therapeutic abortion in the first half of pregnancy. However, if the symptoms are not sufficiently severe, we advise the patient to take a general diet which should include at least an egg daily, one quart of milk, a serving of meat

or cheese, bread, vegetables and fruits. No salt is to be used in cooking or at the table and all foods containing large amounts of salt, such as crackers, ham, salt fish, pretzels, beer, and so forth are prohibited. The average excretion of sodium chloride on a general diet is 10 to 15 Gm. per day. The ingestion of sodium chloride must be restricted until the excretion amounts to less than 3 Gm. before any amelioration of symptoms and signs will occur. In addition, we advise one or two hours bed rest in the morning and afternoon and ten hours sleep at night. Excessive walking, exercises, house cleaning, washing, etc. are prohibited. If in spite of this regime the patient continues to gain weight, we prohibit the use of fats, thus the patient is told to eat no pie, cake or fatty food of any kind and the intake of bread is limited.

If no improvement occurs within a period of one week, the patient is placed on a diet of fruits, vegetables, eggs, cereal, toast, tea and coffee. All of these diets are, of course, salt poor. This is not a maintenance diet and should not be used for a period greater than three weeks.

The next regime is one in which the patient is advised to stay in bed and to eat only fruits and fruit juices. This should not be continued longer than 7 to 10 days. When this period has been reached the patient is usually given one-half grain of phenobarbital two or three times daily. We have not been able to reduce edema by the use of mercurial diuretics or ammonium nitrate or chloride. We are at present trying potassium nitrate.

Danger Signals. Pre-eclampsia. This group comprises about half of the toxemias of pregnancy. The patient should be hospitalized if any of the following symptoms or signs develop:

- a sudden increase in the weight of 3 pounds or more per week
- a sudden rise of the systolic blood pressure of 30 mm. or more
- an increase of the proteinuria to 0.5% or more
- a +++ test for albumin in the 24 hour volume of urine
- the sudden appearance of edema in a patient who has been gaining excessively
- the onset of the various cerebral, visual or gastrointestinal symptoms

Vascular-Renal. This group comprises approximately half of the so-called toxemias of pregnancy and this term is suggested as more suitable than chronic nephritis because, although some of these patients have renal impairment due to nephro-sclerosis, the hypertension is the primary disease. These patients may have convulsions which may be eclamptic in origin or may be due to cerebral changes caused by the vascular disease. In general, the patient who shows primarily a hypertension rarely has convulsions. What we fear in these patients is fetal death, due either to the separation or to the marked infarction of the placenta. If the blood pressure does not increase in these patients they may be carried to term. We have a very small group of patients with a definite hypertension in whom the pressure either did not increase or, what is more important, actually decreased during pregnancy. This is not the usual course. A sudden increase in the systolic blood pressure of 30 or more points, or the appearance of, or increase in, proteinuria to more than 5 Gm. per day, warrants hospitalization. In many of these cases with a systolic blood pressure of 180 or more we are satisfied if we can carry the pregnancy to 34 or 36 weeks and at that time terminate it. The babies are usually small, but if we let them go to term, there will be a high percentage of intrauterine death of the fetus. These patients have an incurable disease and will not have many children. If premature delivery through the natural passage seems dangerous for the baby because of an uneffaced and closed cervix, cesarean section is seriously considered, although it is surprising how short the labors may be even though the cervix was closed at the beginning. The use of a bag is the preferable method of inducing labor in these patients.

Treatment.—Hospital patients. The treatment is essentially that used in the clinic, but proper composition of the diet, rest and elimination can be carried out under controlled conditions.

The criteria used for determining the management of the pregnancy after hospitalization are as follows:

SYMPTOMS AND SIGNS OF SEVERE TOXEMIA OF PREGNANCY

Group A

1. Edema of legs, hands, face, and/or vulva. Excessive or too rapid gain in weight.
2. Albuminuria amounts to more than 10 Gm. per day or the concentration is greater than 0.5 per cent.
3. Blood pressure is consistently over 160 systolic.

Group B

4. Cerebral, visual and gastrointestinal symptoms and signs.
5. Hematuria.
6. Oliguria or anuria.
7. Jaundice.
8. Tachycardia of 120 or more per minute.
9. Cardiovascular impairment (edema of the lungs, cyanosis, etc.).
10. Blood N.P.N. which is more than 50 mg. per cent.
11. Blood concentration as indicated by abnormally high or increasing hemoglobin, cell volume or serum protein concentration.

PREGNANCY

Before 24 weeks. Terminate if more than one of the above listed criteria are present or if there is no appreciable improvement after 7 days of adequate treatment.

25-31 weeks. No interference before 32 weeks' gestation unless some of Group "B" signs develop or those in "A" persist despite treatment or increase in degree.

32-36 weeks. Terminate if 2 of Group "A" signs develop or increase in severity, otherwise no interference unless Group "B" signs appear.

37-40 weeks. If Group "B" signs are absent, medical treatment until the cervix is soft and effaced and a mechanical induction of labor will be successful. If Group "A" signs increase in degree or if any of "B" appear, the pregnanacy should be terminated either by:

1. Rupture of membranes and/or insertion of a bag, or
2. Cesarean section if the cervix is uneffaced and firm. The environment must be suitable and local anesthesia should be used.

These are the rules which we attempt to follow in treating pregnant patients with toxemia. but it must be emphasized that each patient must be regarded as an individual problem.

CONCLUSIONS

Intelligent prenatal care will prevent the occurrence of eclampsia. Those cases which occur despite its use are usually of the mild type.

The incidence of non-convulsive toxemia of pregnancy has not been materially decreased by prenatal care but many cases have undoubtedly been prevented from becoming serious. Furthermore, early diagnosis and recognition of the underlying pathology have often resulted in therapeutic abortion or premature termination of pregnancy. The object in both instances has been to increase the life expectancy of the mother and in the latter to offer the fetus its best chance of survival.

Dietary fads, supposedly specific medication and hormones have all failed to cause improvement in our patients with toxemia.

DISCUSSION

Dr. William A. Michael, Peoria: Dr. Dieckmann has dealt with the treatment of non-convulsive toxemias in a very sane and forceful fashion. I feel, too, that a more general application of the methods he advocates will certainly lower the incidence of the eclamptic seizure and also lower the maternal mortality.

While the etiology of the toxemias of pregnancy remains obscure, physicochemical investigations that have been carried out in the last few years have certainly yielded valuable information as a basis for treatment of these abnormal conditions. I feel it is through this avenue that eventually will come the true etiology of the toxemias.

I am inclined to disagree a bit with the speaker regarding the ophthalmoscopic examination. I feel that very valuable information can be gained from repeated ophthalmoscopic examination both from the standpoint of diagnosis and prognosis.

If you will pardon a personal allusion, it has been a pleasure to me to follow the work of Dr. Dieckmann in this field in the past several years, inasmuch as he was an intern on the service during my residency. It has been a pleasure indeed to hear his presentation.

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PROGNOSIS IN CARDIAC DISEASE

JAMES G. CARR, M. D.
CHICAGO

To often, in our endeavors to correctly diagnose the status of the cardiac patient and to institute the proper treatment, we forget the interest which the patient has in the prognosis. To him, it is a matter of importance that he should be relieved of pain or sleeplessness or dyspnea; it is important that he should be treated for cardiac disease if he has it, but to many patients it is even more important to know what the future has in store for him. Is he hopelessly sick and permanently incapacitated? Must he alter his whole manner of living? Depending upon the patient's conception of his disease, the questions

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as to the outlook include all manner of possibilities. Is his condition hopeless? What help, temporary or permanent, may he expect? To what extent, in his particular case, is he incapacitated for work, particularly for the work in which he is already engaged as the source of his livelihood, These questions, and many more, are familiar to every physician. To the patient, his or her relatives and dependents, such questions are vital. Upon the answer the family must base plans for the future, plans for the patient, plans for dependents, and for business associates; arrangements must often be made for carrying on or discontinuing a business.

Oftentimes in the early stages of cardiac disease, prior to any signs of failure, individuals are met whose symptoms are the result only of the knowledge of the presence of a cardiac lesion. Such knowledge often is sufficient to create a state of apprehension so great as to actually cause some degree of physical disability. Patients in this group, even though they are in no immediate danger of incapacity (indeed, are often likely to continue fit for work for years), may be decidedly refractory to the encouragement which is the only truthful answer to their queries; the fear engendered by the term, "cardiac disease," outweighs every other consideration. Between the patients with well-defined cardiac disease and those with purely neurotic findings and symptoms, is a border-line group, which includes widely different clinical pictures: herein, for instance, we find the patient with ectopic beats unassociated with any other evidence of disease, usually a harmless irregularity; then the patient with tachycardia which is due to some non-cardiac disease such as thyrotoxicosis; in the group of cardiac diseases of doubtful origin and significance, we must include those patients, usually men, in the late thirties or the forties, who complain of cardiac pain, often mildly characteristic in type, with or without cardiac irregularities; there may be an associated rise of blood pressure of moderate degree and questionable significance.

In the attempt to present underlying principles of prognosis we encounter many difficulties. The relationships of age, sex, color, occupation and coincident disease, the underlying etiological factor, the stage of the disease, the ocasional coincidence of more than one type of cardiac disease, and the frequent association with renal, vascular or pulmonary disease, make precise or accurate statements impossible. Nevertheless, in the hope of shedding some light upon an obscure and difficult subject, such an attempt will be made.

The occurrence of valvular disease in the course of acute rheumatic fever, or its congeners, scarlatina and chorea, usually means a permanent lesion, although in recent years certain studies have been published which indicate that in a fairly large number of cases the signs of valvular disease ultimately disappear. While such evidence of entire recovery may be ocasionally determined, this is an event which cannot be expected, and should be included in the prognosis with definite reservations. The valvular lesion of a first attack of any of the rheumatic group of diseases may subside with the disappearance of the physical signs; the lesion may persist, which is the usual result, for the rest of the patient's life. The mere presence of multiple valvular lesions does not notably alter the prognosis.

If the original lesion is not reactivated by fresh infections the outlook for life and activity is good. A fairly large number of patients are seen in late middle age with the physical signs of rheumatic heart disease dating back to childhood, yet these people have gone through years of normal living, often doing strenuous work.

Rheumatic cardiac disease as the cause of death and disability is usually found in association with hearts that have sustained repeated attacks of infection. In the presence of a valvular lesion the prognosis is clouded by recurrent attacks of fever following minor respiratory infections, by repeated attacks of rheumatic fever, often of minor severity, and by prevalent infections, particularly tonsillitis and the group loosely classified as influenza. Partly because of more extensive disease, partly because of repeated involvement of the muscle, compensation fails. This group includes the patients who go on through weary years of alternation of fair health and cardiac breakdown, until the final break comes. Subacute bacterial endocarditis is always secondary to previous valvular disease; it is superimposed, not primary. In my experience, the appearance of signs of embolism, in association with fever, splenic enlargement and a positive culture of the streptococcus viridans has always been followed by a fatal outcome.

Simple syphilitic aortitis with minor symp-

toms responsible for some disability, may occur in the secondary stage: my experience includes very few cases which warranted such a diagnosis. Syphilis of the cardiovascular system as a cause of disability and death is practically confined to three types of disease: (a) aortic regurgitation with congestive failure; (b) aneurism of the aorta, usually of the thoracic portion; (c) narrowing of the orifices of the coronary vessels. In the first group, the onset of cardiac failure is fraught with a grave prognosis; restoration of compensation may be attained, but exacerbations are easily provoked, and once decompensation has occurred the prognosis is usually unfavorable. In the past ten years, the use of antisyphilitic treatment, mercury, arsenicals and bismuth, as well as potassium iodide, has improved the outlook materially. The first three drugs mentioned must be used with care, in doses much smaller than are given in secondary syphilis, and such medication should not be started in the presence of gross decompensation; a fair degree of compensation must first be obtained. In the past five years, the literature has contained several exhaustive articles on this subject to which those who are interested may be referred. Among individuals with inadequate or untreated syphilis aortic regurgitation will appear in about 40% within an average time of about twenty years after infection. Within the same average period about 25% will die of the cardiac involvement. The negro is especially susceptible to the cardiovascular complications of syphilis.

The duration of symptoms of aneurism is surprisingly variable. Patients have been seen with fairly large aneurisms without great disability. The prognosis is poor if the aneurism is complicated by aortic regurgitation. Otherwise the patient may live for some years, although the possibility of rupture with sudden death must always be borne in mind. The average age at death from syphilitic aortic regurgitation and aneurism is about the same, about 45; the average time after the initial infection at which death occurs is about 20 to 25 years. A very large proportion of such cases never had adequate treatment, which is of notable value in the prevention of cardiac complications if instituted early in the course of the initial infection.

Syphilitic aortitis associated with symptoms of anginal character presents peculiar features as to treatment and prognosis. Pain of anginal character of the type attributed to coronary disease, occurring in the course of syphilitic aortitis may be due to the ordinary type of coronary arteriosclerosis, to aneurism, occasionally to aortic regurgitation or to narrowing of the coronary orifices resulting from the syphilitic process itself, or a combination of multiple causes. Syphilis does not invade the coronary arteries: the puckering of the aortic intima may be responsible for stenosis of the coronary orifices. This stenosis may be associated with attacks of angina pectoris, possibly with paroxysmal dyspnea, though this is uncommon in the absence of hypertension. Such attacks may terminate in sudden death. The incidence of sudden death, in the course of syphilitic aortitis, due to coronary disease or ruptured aneurism, is probably greater in private practice than in hospital practice. According to Martland, "Syphilitic heart disease (33%) is next in importance (as a cause of sudden death) to arteriosclerotic heart disease (47%) which is responsible for the greatest number of cardiac deaths."

Hypertensive heart disease is associated with three types of cardiac manifestations, all of which present certain features of significance: 1. cardiac hypertrophy; 2. anginal failure, and 3. congestive failure. The first two will be discussed under the headings mentioned. Here attention is directed to hypertensive heart disease with congestive failure. The first prognostic criterion is the response to rest and digitalis; if compensation promptly ensues, the outlook for the patient is good, provided he will submit to the necessary restrictions, which include curtailment of physical activities and avoidance of emotional and nervous strain. The directions to these patients must include dietary restrictions, partly for the purpose of preventing overweight and partly to protect the heart from various symptoms which may follow overeating. Under a proper regime, with due regard to the individual situation, a good prognosis is justifiable, but this is dependent upon the promptitude and completeness of the return to compensation, the cooperation of the patient, and to an extent which cannot be defined, upon the height of the blood pressure. Here, as in most cases of cardiac disease, the prognosis is largely dependent upon the situation in life, the oportunities for

lessened activity, for freedom from worry and care.

The arteriosclerotic heart cannot be wholly separated from the hypertensive group—the two overlap. In general, the patients with arteriosclerotic cardiac disease are of more advanced years than those in the other groups. The mechanism of adjustment to abnormal situations is inadequate as compared with that of younger people; the arteriosclerotic process is likely to be general; the essential disease is vascular and widespread. Upon the whole, this group responds poorly to the usual methods of treatment and relapse is early.

The relationship of cardiac hypertrophy in itself to prognosis is a matter of more importance from the standpoint of insurance than from that of general practice. Cardiac hypertrophy is a result in the course of most cardiac diseases. It may be present through many years. That it is a matter of some moment may be inferred from the importance attached to this deviation from the normal by insurance companies. Hypertrophy is a stage on the way to the ultimate breakdown, but in the individual case the prognosis depends upon the presence or absence of other type of cardiac failure, the question as to whether or not the primary cause is stationary or progressive (in old rheumatic disease after a long period without recurrence of active infection, the former may be present, in hypertension with a steadily rising systolic pressure, the latter) and the state of the coronary vessels. For instance, a fairly large proportion of patients with aortic stenosis of rheumatic origin will develop marked hypertrophy, yet live to relatively old age.

Anginal failure includes two important groups of disease—angina pectoris and coronary occlusion. Few of us are willing to express dogmatic opinions as to the duration of life in these groups. Every prognosis must be qualified by our knowledge of the possibility of sudden death, though this aspect should not be discussed with the patient. Nothing will destroy the morale of a patient so completely as to give him the impression that sudden death is the probable outcome of his disease. As a matter of fact, it is not; suddent death is not frequent. It is, however, an aspect of the disease which requires appraisal to some member of the family, but not to the patient. After this hazard has been given consideration, certain other important facts require attention.

Angina pectoris, as an essential disease, offers a prognosis based upon the frequency and severity of the attacks, (which may be so pronounced as to incapacitate the patient and yet persist for years, though this is infrequent) the response to rest, the capacity of the patient to rid himself of anxiety, the willingness of the patient to avoid nervous, mental and physical overstrain, including exposure and overeating. Coronary occlusion presents a mortality rate of about 20% in the first attack. The prognosis in the acute attack is bad in cases characterized by cyanosis, marked tachycardia, pulmonary congestion, significant fall of the blood pressure, or the development of edema. It has been my experience that the development of congestive failure following a coronary occlusion is a particularly ominous symptom. The patient whose symptoms disappear, whose electrocardiogram becomes practically normal, who is able to protect himself from physical and mental strain, has a good outlook for life. Subsequent occlusions may occur and are found in a fairly large percentage of cases. The prognosis is distinctly worse in the recurrent occlusions. The electrocardiogram is of great value in diagnosis; the prognosis may be ganged more accurately by reliance upon the clinical aspects. The prognosis is further dependent upon the patient's attitude and his willingness to accept restrictions. The nervous, apprehensive patient is always a source of anxiety to his physician. The cooperative patient, willing to accept a prolonged period of rest, restrictions of diet, exercise and recreation, is usually rewarded by the return to a considerable degree of good health. In some patients, but in my experience only in a small minority, the major attack is followed by attacks of angina pectoris. The prognosis for this group is not good: the return to health is far from complete, and subsequent attacks of occlusion are relatively frequent.

The emphysema heart is characterized by the symptoms and physical findings of right ventricular failure in patients who have long had the signs of emphysema. The prognosis is poor. The failure is practically always of the congestive type. In my own experience the onset has

almost invariably been followed by one exacerbation of congestive failure after another: improvement may occur after proper treatment but with moderate increase of activity the symptoms of failure recur: this alternation of improvement and exacerbation keeps the patient incapacitated through the short space of life left to him.

Acute pericarditis is a serious complication of rheumatic fever, scarlatina or chorea, occasionally of pneumonia, especially of the type known as influenzal bronchopneumonia. Prognosis must be guarded. Chronic pericarditis of the adhesive type is recognized as an occasional cause of persistent, progressive and finally fatal, cardiac failure. Surgery offers some hope in these cases.

A question of never-failing interest is that of the various cardiac irregularities, irrespective of the underlying lesion. What is the prognostic significance of these forms of aberrant cardiac activity? The premature contraction, spoken of as the extrasystole, is usually of little consequence. It causes the patient much more concern than is warranted. It is not, in itself, an indication of cardiac disease, and may be disregarded except for the annoyance to the patient; it is significant only upon certain conditions. In chronic cardiac disease ectopic beats may be related to myocardial fibrosis or ventricular strain; the appearance of such beats is of little or no clinical significance. In the course of acute infections, such as pneumonia, irregularities are usually of serious import, but not necessarily ominous. These arrhythmias call for careful discrimination in treatment; they may be aggravated by stimulants. Because of the frequent use of digitalis in pneumonia it should be emphasized that this drug may produce ectopic beats; the appearance of such an irregularity under the administration of digitalis is an indication for the prompt withdrawal of the drug.

The occurrence of ectopic beats has some prognostic value in cases of coronary occlusion, in which cardiac irregularities of any type, developing shortly after a fresh attack, may be significant. Now and then, following the onset of ectopic ventricular beats, the patient develops paroxysmal tachycardia or dies suddenly, probably as the result of a ventricular fibrillation. Numerous ectopic beats occurring shortly after an occlusion, call for particular effort to provide rest and quiet for the patient. Quinidin is often useful here, while digitalis is dangerous under these conditions. In cases of congestive failure under treatment with digitalis, the appearance of ectopic ventricular beats calls for the discontinuance of the drug. Failure to stop the digitalis may precipitate serious forms of digitalis intoxication.

The various tachycardias—simple paroxysmal tachycardia, auricular fibrillation or flutter usually offer a good prognosis, although ventricular tachycardia is usually an event in the course of serious myocardial disease.

An established fibrillation, such as is found so often in certain types of disease, especially the rheumatic, arteriosclerotic and thyrotoxic, does not greatly alter the prognosis. The appearance of this rhythm may be accepted as another mark of progressive cardiac damage; but many patients, especially of the arteriosclerotic group, will survive the onset of fibrillation for years. Fibrillation of thyrotoxic origin is often supplanted by the normal mechanism after a successful thyroidectomy.

Heart block is not incompatible with many years of life. A large proportion of the few patients who are found with this rhythm is made up of older people and the block is associated with marked myocardial change, usually upon an arteriosclerotic basis. This probably accounts for the relatively short duration of life after the dissociation is discovered. Frequently, the appearance of the Stokes-Adams syndrome is of bad prognostic significance, though even here, life is often prolonged through years, rather than months. Reports may be found in the literature of numerous cases in which complete auriculoventricular block has existed for years following diphtheria without notably incapacitating the patient.

The electrocardiogram, valuable as it is in diagnosis, is to be applied to prognosis only with due consideration of the clinical features of any given case. Serial electrocardiograms may be significantly helpful.

In conclusion, may we emphasize the importance of careful prognosis. To the patient this feature of our work is decidedly important; the same statement applies to the family and to business associates. It should be our endeavor to properly consider this aspect of cardiac disease. Upon our decision the usefulness of many lives

depends. The good judgment of the physician may keep alive the patient's interests in his work and his future, and relieve the patient and the family of the depression which comes with the feeling that a fatal disease impends. On the other hand, a correct prognosis may be the basis upon which the affairs of the patient may be best adjusted, if the outlook is unfavorable. From either aspect, it is worth the while of the physician to apply his knowledge and experience to a question of such vital importance, both to the patient and to those deeply interested in his welfare. When such is possible, and truthful, the good prognosis is a medicine hardly to be excelled.

30 N. Michigan Avenue.

THE HEALTH HAZARD IN THE USE OF CARBON TETRACHLORIDE

G. W. Daubenspeck, M.S.
Industrial Chemist, Illinois Department of Labor
CHICAGO

Carbon tetrachloride or tetrachlormethane, $C\ Cl_4$, is a heavy, volatile, non-inflammable liquid having an odor similar to chloroform. It is an excellent solvent for fats and many resins and cellulose compounds. Being the cheapest flame proof fat solvent obtainable, it has found increasing industrial use.

It is often added to naphtha to reduce fire hazard, too often without properly appreciating the added health hazard. In the rubber industry especially[1] it has been substituted for benzol, which is equally toxic and inflammable, and carbon disulphide, much more toxic and highly inflammable. Substitutions of this sort are often desirable but it should always be kept in mind that one may be introducing a different hazard and one less well understood. Carbon tetrachloride and similar compounds are sometimes used in paints and lacquers.[2]

At present, the principle uses are in degreasing dry cleaning, paints and related preparations, fat extraction, rubber solvent, fire extinguishers and in the treatment of hookworm disease. Workers likely to be exposed include dry cleaners, rubber workers, firemen, lacquerers, degreasers, vulcanizers, painters, janitors and machinists.

Most of the literature deals with acute poisoning. Chronic effects may be more important from the health standpoint but are less easy to diagnose and, therefore, are less known. Carbon tetrachloride and similar substances are not stored in the body and, hence, are not cumulative poisons in the way that heavy metals are. However, the effects of cellular destruction are cumulative.

Acute carbon tetrachloride poisoning is characterized by abdominal pains, vomiting, diarrhea, jaundice, anemia, pulmonary inflammation and edema, and urinary suppression with urine high in albumin, casts and bile pigments.[3,4] First symptoms of chronic poisoning are persistent headaches, nausea, loss of appetite, loss of weight and irritation of the eyes, nose and throat.[3]

There are individual differences in susceptibility but it is desirable and feasible to reduce the atmospheric contaminations to amounts which are safe for all. Obese or undernourished individuals and those with kidney, liver, lung or thyroid disease or addicted to the use of alcohol are especially susceptible.[3] Diets high in carbohydrates and calcium and relatively low in protein and fat tend to decrease susceptibility and aid in the treatment.

Often the relative toxicity of compounds of this nature is measured by their narcotic action. Carbon tetrachloride has a narcotic effect of about half that of chloroform, but its actual toxic effect, while similar, is much more severe for the same amount of exposure. Carbon tetrachloride is the most toxic of the chlorinated methanes. Tetrachlorethane is more toxic and the chlorinated naphthaleins and diphenyls (waxes) still more so.

Trichlorethylene is being used rather extensively for removing grease and waxes from small articles by dipping. Manufacturers often consider it harmless. However, it has effects similar to carbon tetrachloride, possibly less pronounced, and the vapors are known to cause an atrophy of the optic nerve and the sensory fibres of the fifth cranial nerve.[4]

Tentatively, amounts in excess of 100 parts per million of carbon tetrachloride vapor in the air are deemed harmful by this department. The smallest amount detectable by smell for the average individual when first entering the atmosphere is probably about 100 parts per million.[5] In view of this, even a slight odor is indicative of a health hazard. Chemical means have recently been developed for determining low concentrations quite accurately.

It has been reported that a resistance may be developed by continued exposure.[5] However, this applies chiefly to very low concentrations and may readily be explained by greater care, diet, etc. Based on our present knowledge, it would be extremely hazardous to assume that workers accustomed to very small amounts of vapor could withstand relatively high concentrations. Recovery from mild and sometimes severe cases of acute poisoning appears to be complete, but there is no doubt a permanent kidney and liver damage. This may predispose the individual to disease later. Occasionally a mild addiction may be acquired for this and similiar compounds, and chronic poisoning has been traced to this fact.[3]

When strongly heated, especially in the presence of water vapor or alcohol, carbon tetrachloride forms chlorine, hydrogen chloride and phosgene, all of which are highly toxic. This occurs in the presence of open flames.[6] Carbon tetrachloride should not be used in extinguishing fires in closed places or where there is a great amount of heat. It has been suggested that the toxic action may be due to these same decomposition products produced in the body cells.[3] Commercial carbon tetrachloride sometimes contains phosgene and chlorene as impurities. This would greatly increase the hazard.

Carbon tetrachloride, in common with all fat solvents, is responsible for certain dermatoses. It is thought that the chlorine has a special irritating effect.[7] This is a minor hazard as compared to the effects of inhaling the vapors, but it is possible that absorption through the skin may cause poisoning.

Control of poisonous volatile liquids in industry consists in handling them in a completely closed system where this is feasible. Where this is not feasible, local ventilation by mechanical means is necessary, except where very small amounts are used only occasionally. This is frequently accomplished by performing the operation under a hood, only one side of which is open. A current of air is maintained through this opening sufficient to carry the vapors away from the breathing zone of the operator. Since carbon tetrachloride vapor is heavier than air, the exhaust opening is more effective if placed at the bottom. Special precautions should be taken when used in connection with chlorinated waxes, alcohol and perhaps other substances.

Recent statistics[8] prove that the relative mortality of industrial workers is decidedly higher than in the general population. It seems reasonable that a large part of this is due directly or indirectly to industrial poisons, all of which are controllable.

Effects of industrial poisons causing slight morbidity, with loss in efficiency and predisposition to specific disease, are difficult to recognize and this is a field in which addition to our knowledge is urgently needed.

In cases of nephritis, or liver trouble, a past history of excessive or long continued exposure to carbon tetrachloride or similar compounds would be extremely significant, although other factors often prevent the original cause being traced directly to any one compound or condition. In this connection, it would prove extremely valuable if the employer kept a detailed job record of each employee, or if the employee kept an individual diary of this sort.

Carbon tetrachloride is a very valuable substance in industry. It is highly toxic, but much less so than many other materials, and the health hazard is relatively easily controlled. More information is needed concerning its chronic effects and the effects in connection with other poisons.

205 W. Wacker Drive.

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TWO OF A KIND

She falls in love with a fellow
Who swells with a foreign air;
He marries her for her money,
She marries him for his hair!
One of the very best matches—
Both are well mated in life;
She's got a fool for a husband,
He's got a fool for a wife.

—Exchange.

IRRADIATION OR SURGERY IN CANCER OF THE LARYNX?

THOMAS C. GALLOWAY, M. D.
EVANSTON, ILL.

Three years ago Beck and Guttmann presented before this section an excellent paper on this subject. Since then several controversial points seem to have been sufficiently clarified to make it worth while to review the question.

It has seemed to me that a rosier picture has gone forth than is justified of the ease, simplicity, normal end result and probability of cure of cancer of the larynx by irradiation. I have fairly recently seen die in our wards two cases which were said to have been exhibited within a few months previously as almost certain cures by radium. One died of recurrence, the other of late radium necrosis. The latter had ulceration and death of cartilage of the treated larynx and that peculiar and fortunately rare state of despair, lost hope, cachexia and weakness that made him quite unwilling to make any effort to live. Also not long since I saw as referee a very early case of a probably five millimeters wide growth toward the anterior end of the cord without fixation or infiltration, who was later operated on by the Jackson technique who should have at least a 90% chance of cure and be left normal for all practical purposes. He had seen the head of a cancer clinic who had left him with the impression that he could be guaranteed a 100% probability of cure without operation. From any results I have seen that hardly seems justified. This does not question the great value in general of radiology in cancer and we should be lost without the help of men working in x-ray and radium in most cancers about the head.

The points I shall wish to make are these:

1. Cancer of the larynx still comes late to its proper treatment and much must yet be done to educate the laity and the profession to the necescity of early diagnosis.

2. Partial laryngectomy or laryngofissure in the proper case is an eminently satisfactory procedure. We should concentrate on it as the ideal to be made available by early diagnosis, slightly widened indications, or more effective modifications.

3. Laryngectomy has reached a high point of perfection as an operation, but leaves so little in life that we are warranted in many cases in substituting for it partial laryngectory, even at greater risk, or irradiation.

4. Irradiation is of considerable value in extrinsic cancer of the larynx and almost the only treatment of value here.

These points will now be taken up in more detail.

Early diagnosis is the most important factor in proper treatment and it should be easy because intrinsic cancer advertises itself very soon by hoarseness, it progresses slowly because of its type and the anatomical factors; it can usually be seen without difficulty by a competent examiner by mirror or direct inspection. Differential diagnosis especially from lues, tuberculosis, syphilis, benign tumors and chronic laryngitis is not hard and biopsy can easily be taken to settle the issue.

With early recognition an ideal result should be the rule. Yet that is far from true in the cases that come in private practice from the most intelligent part of our population. And in a large charity service the cases are rare that are at all amenable to treatment. Ignorance, procrastination, wilful disbelief, lack of courage in facing unpleasant facts and fatalism, both in patient and doctor in spite of all of the education and propoganda that have gone on, still cause fatal delay.

With over an 80% chance of cure with a usable voice and a normal airway, and social and physical living and the zest for life not impaired in the successful case treated early, it should still be shouted to the housetops that persisting hoarseness past the second decade must be explained no matter what examination is required. General anesthesia for direct laryngoscopy if proper inspection can not be done without or early exploratory laryngofissure in the suspicious subglottic case should be done if necessary to prove cancer is not present. The alternative of failure to recognize in time carcinoma of the larynx is so terrible that nothing less is justifiable.

Except for the simple destruction or excision of a small skin tumor, nowhere in the body, I believe, is there a more satisfactory procedure for cancer than the St. Clair Thomson laryngofissure or one of its modifications. The operative mortality should be well under one per cent. and in a large series of cases by Jackson, New, Gluck-

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society. Peoria, May 19, 1937.

Sorensen and others the permanent cures have varied from 82 to 88%. It usually leaves a normal airway, a voice that may even fill a pulpit and an individual who is not shut off by himself or others from full social enjoyment. The technique is relatively simple. In the Thomson operation the tissues are divided exactly in the midline, the cartilage is separated from its perichondrium on both sides and is excised, collapsing the soft tissues for easy inspection and removal of the affected medial wall of soft tissue back to the arytenoid. The Jackson technic of first splitting the cartilage before opening the larynx and elevating the soft tissues only on its medial face makes possible more nearly restoration of the normal voice box, but at times the cartilage may slough prolonging the healing and leading to more distortion in the end. The procedure is also somewhat more difficult. It probably is less safe because possibly affected cartilage is not removed. It has one slight disadvantage that radium x-ray can not be used so effectively if recurrence occurs, as shown by Ledoux and Harmer, as when the cartilage is gone. It is better when the tumor has grown across the anterior commissure and seems to be growing in popularity.

Partial laryngectomy should be done in all early cases with involvement of the anterior half or two-thirds of the cord when it is unfixed or slightly fixed and does not extend to the ventricular band. If the tumor is of grade I or II the operation may be used though the growth has infiltrated. Posterior involvement contraindicates this type of operation but I have successfully used it with electrocoagulation even here, but healing is slower and if one must sacrifice any of the party wall esophageal overflow or leak is likely and laryngectomy is a much more satisfactory procedure. Hayes Martin in his very fine recent exposition has advocated widening considerably the indications for partial laryngectomy with removal of a considerable part of even both thyroid ala if necessary and this seems almost as safe and a better procedure than laryngectomy in even fairly advanced cancer if confined to the front of the larynx. His ingenious laryngostomy tube and laryngostat for protracted irradiation under inspection of the open larynx also seem promising.

If all carcinoma of the larynx were intrinsic, and if it were anterior without cord fixation the laryngologist and his patient would find life rosy and probably the radiologist would have little to do here. The real problem comes when the case has advanced beyond the stage where laryngofissure is usually conceded, although here I should extend my indications using diathermy to clear up doubtful borders at somewhat greater risk for the infinitely more satisfactory end result.

Laryngectomy, as Mackenty showed, can give with some selection of material 76% of cures and many patients adjust themselves to a neck fistula and impaired voice very well. Many however scarcely find life worth living. For such cases it is perhaps debatable whether irradiation is not a better choice. In tuberculosis, nephritis, diabetes and other conditions which make the operative risk high as pointed out by Jackson irradiation should probably be done.

X-ray and radium are not so simple and easy as often supposed. If employed they must be used in dosage and for a time that may produce quite unpleasant effects including marked epidermitis and mucositis, drying, dysphagia, occasional severe edema, or even periochondritis. Early and late irradiation necrosis is always possible and it is a question now with us where intensive x-ray treatment is given whether an early tracheotomy is not advisable. Kadranka and Bardet report lighting up of apical tuberculosis in 43% of a series of neck malignancies treated by x-ray. Of course the x-ray or radium must be given in adequate dosage, properly fractionated by a man who has not only adequate equipment, training and experience but also the courage to carry his treatment to the absolute limit of normal tissue tolerance.

The histological type should have some weight in deciding as the more anaplastic cell type, toward grade III or IV of Broders though less common in the larynx should veer the scales toward irradiation.

If the tumor is from the first or has become extrinsic, then the resource with rare exceptions is in irradiation. Of course it is not fair to x-ray or radium to expect them to control easily carcinomata which have eroded cartilage or become infected or markedly extended or given glandular metastases which are as a rule more resistant than the original growth. Yet usually if there

is any chance irradiation at this stage will give it.

Ventricular band carcinoma which has extended over the rima is usually of a more radiosensitive type and should be given to irradiation.

Post cricoid carcinoma is likely to be of a less mature type, is relatively advanced as a rule when discovered and should nearly always be treated by irradiation. Its removal would involve not only laryngectomy but removal of the upper esophagus as well—a dangerous procedure with far less chance of cure than with irradiation in which the end result would be so much better with nearly normal function.

The epiglottis may be the seat of a well localized fairly mature type cancer in which the cartilaginous tumor bed may make the response to x-ray uncertain. Its amputation with electrosurgery on the other hand using suspension is not difficult, will not open up avenues for metastases and may even leave conditions better for irradiation if the growth proves to have involved the base or the adjacent tongue. Carcinoma which may have broken through the anterior commissure may likewise be amenable to laryngofissure with electrocoagulation as in the notable case reported by Sonnenschein in which Mackenty refused to do laryngectomy though the patient had no recurrence after seven years by the more simple procedure.

As to the choice between radium and x-ray that perhaps had better be left for debate by the exponents of both. Regaud saw no specific advantage in either. And as to treatment by high and low voltage it is to be remembered that Coutard's results were for the most part obtained by not over 200 kilovolts. What is more important is that the operator have the time, the patience, the standing and the courage that he will if necessary give treatment up to the absolute limit of normal tissue tolerance even at the expense of considerable suffering and temporary alteration of neck structures.

It should be recognized also that x-ray, radium and surgery may all complement one another.

No temporizing under-treatment with irradiation that may make permanently resistant the tumor should be employed. And its use should be withheld until it is positively indicated and then used in full dosage. It is wise I think not to irradiate preoperatively. It also is wise I think ordinarily not to attempt laryngectomy when irradiation has failed, though Harris reports that this was possible where high filtration and low amperage were used. The nutrition is impaired, the wounds do poorly and most of such patients die. There is an interval immediately on subsidence of such reaction, usually within six weeks of beginning of treatment, when, if it is apparent that irradiation will not succeed, surgery may be possible and at the County Hospital we have had some success in such cases.

If surgery fails, especially if there is wound recurrence, after laryngofissure without glands then full irradiation should I think be employed and may I think give some promise of success. The previous removal of cartilage will aid here. It should not be given as a half hearted routine postoperatively but withheld until recurrence is definite.

This discussion has been concerned too much perhaps with an ideal condition—early intrinsic carcinoma with a laryngofissure, which alone at present gives highly satisfactory results in cancer of the larynx. But emphasis has advisedly been so placed that we may get to general men the importance of the early warning of hoarseness so that for ourselves and our patients we may dispel the fear of what may after all turn out to be hardly more than one of the minor annoyances of life.

DISCUSSION

Dr. H. E. Davis, Chicago: I feel somewhat embarrassed to stand before nose and throat men and discuss this subject which belongs in their field.

Early diagnosis of these lesions should not enter into my discussion. It is most important and I cannot see any reason why the cause of persistent hoarseness should be neglected.

One of the principal reasons for giving preparatory external irradiation in the treatment of malignancies of the larynx is because practically all of these lesions are infected. External irradiation apparently reduces the infection and if given preparatory to other measures of therapy, I think it is of definite value. Even though the tumor is not completely destroyed by external irradiation, it is placed in a position of recession rather than progression. When the tumor is first seen it usually is in a progressive stage. If it can be placed in a recessive stage, it is in a more favorable condition for local therapy. The failure of completely destroying many of these lesions by external irradiation is due to the inability to deliver adequate dosage to the tumor area. We are aware that many malignancies require 6 to 8 erythema doses of irradiation for com-

plete destruction. It is impossible to deliver such a dosage by external irradiation alone because of the overlying structures in the neck. This dosage may be delivered in a period of two or three months but such protraction tends to increase the resistance of the cells.

It is my opinion that by adopting a combined radiological and surgical viewpoint in the treatment of these malignancies better progress will be made.

Dr. Thomas Galloway, Chicago (closing): In our head cancer team three men represent their own specialties—Dr. Davis, radium, Dr. McNattin, x-ray, and myself, surgery. We keep each other in line, and I think there is no question that doing so we get results not otherwise possible.

THE TREATMENT OF HYPOGENITALISM IN THE MALE

W. O. Thompson, M. D.,
N. J. Heckel, M. D.
A. D. Bevan, M. D.
AND
P K. Thompson, M. D.
CHICAGO

This paper will deal with an increase in the size of the genitalia noted in treating boys for undescended testes with an anterior pituitary-like principle, and its application to hypogenitalism.

Interest in the treatment of undescended testes has been aroused in the last few years by the use of this material. The large percentage of successful results (70% on the average) reported from its use seemed questionable to some surgeons who are familiar with the pathological anatomy of undescended testes. We, therefore, formed a group consisting of a surgeon, a genitourinary surgeon, and an internist to study the problem.[1] Contrary to many reports, we were able to produce descent in only 7 of 28 patients (25%), but did produce a striking stimulation of genital growth in many instances. In some boys from 4 to 9 years of age stimulation of growth was so marked that premature puberty was produced. The penis and scrotum became as large as those of a normal adult, there was an enlargement of the prostate, a growth of pubic hair, a change in the pitch of the voice, and in one instance, growth of hair on the sides of the face. The increase in the size of the penis, scrotum and prostate was much more striking than the increase in the size of the testes. Growth of the genitalia was produced in 50% of the boys with undescended testes and in 35% the growth was marked. The reason for the striking variation in response to this stimulus is not clear.

The development of premature puberty in the treatment of undescended testes is undesirable and raises the question as to the age at which treatment should be started. It is not yet known what harmful effects are associated with premature puberty resulting from the use of this material. So far no retardation of skeletal growth has occurred, but it is too early to be certain that there will not be retardation. When the administration was discontinued, the increase in the size of the genitalia stopped and in a few instances some regression in size occurred. Premature puberty does not result in from 6 to 8 weeks of treatment even with large doses, although in some patients a well marked increase in size will occur. In all but one of our successful cases descent took place within 9 weeks. Continuing the treatment for a much longer period in the hope that descent may occur eventually not only may fail to produce the desired result, but it may cause abnormally large genitalia. Treatment covering a period of 8 weeks is rarely harmful so far as can be determined at present. If descent fails to occur, the treatment is still of value because it causes growth of the parts involved in descent, and seems to make it easier to bring the testis into the scrotum at the time of operation. Thus, with careful control, induction of premature puberty can be avoided and when the administration of this material is combined intelligently with surgery, it represents an important therapeutic advance. Its administration may also be useful in some instances in causing descent of testes not brought quite into the scrotum at the time of operation because of shortness of the structures involved. It may also facilitate the correction of hypospadias and other genital anomalies by causing growth of the parts involved preliminary to operation.

The growth of the genitalia in boys with undescended testes, most of whom are of normal body contour, led us to try the administration of the A. P. L. material in boys with hypogenital-

From the Departments of Medicine and Surgery, Rush Medical College of the University of Chicago, and the Presbyterian Hospital, Chicago.

Read before Section on Medicine, Illinois State Medical Society, May 19, 1937, at Peoria.

ism, most of whom are of the Fröhlich type. Growth of the genitalia was produced in 9 of 12 patients (75%), although so far no case of premature puberty has resulted. The big problem again is the age at which treatment should be started. This question can not be answered until we know more precisely what rôle the testis plays in development before puberty. We are inclined to favor treatment as soon as hypogenitalism is recognized, although details of treatment are still to be worked out. We have found the material of value in boys up to the age of 19 and have, indeed, produced growth of the genitalia in a man 37 years of age. However, after the age of puberty, the susceptibility to the growth stimulus appears to be much less.

The material does not affect the basal metabolism or the body weight. Since many boys with hypogenitalism have a low metabolism and are obese, the correction of these abnormalities is an important part of the treatment, which should, therefore, include an adequate weight-reducing diet and the administration of desiccated thyroid. To prove that the material was effective, most of our boys received no treatment except the A. P. L. principle. It would be desirable to have a pituitary extract which would correct both the hypothyroidism and the hypogenitalism, which may be secondary to failure of the anterior lobe of the pituitary. Pituitary extracts, however, are unsuitable for routine clinical use at present and the problem must be attacked indirectly. The most important application of the anterior pituitary-like principle in the male would appear to be the treatment of hypogenitalism, and its administration in this condition represents an important therapeutic advance. It would appear that the outlook for boys of the Fröhlich type has been completely altered.

SUMMARY

We have observed marked stimulation of genital growth from the use of an anterior pituitary-like principle in the treatment of boys with undescended testes and hypogenitalism. When combined intelligently with surgery, it represents an important advance in the treatment of undescended testes. However, premature puberty may result if the treatment is continued too long. The most important application of the anterior pituitary-like principle is in the treatment of hypogenitalism, the outlook for which has been completely altered. Since this material is a powerful therapeutic agent, its administration should be carefully supervised, particularly in the treatment of undescended testes.

In the treatment of both undescended testes and hypogenitalism we used Follutein of E. R. Squibb and Sons in doses of from 600 to 1200 rat units per week; and A. P. L. prepared by Ayerst, McKenna and Harrison after the technique of Dr. J. B. Collip, in doses of from 600 to 21,000 rat units per week.

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DISCUSSION

Dr. Frank A. Norris, Jacksonville, Illinois: I am very glad to hear this conservative paper on the treatment of this condition and, being a general surgeon, most interested in undescended testes. We were taught that degeneration occurred early in testes that were left in the abdomen and that if operative interference was not done early before puberty, it was not worth while bringing the testes into the scrotum. This condition is not a common one and many have been skeptical about the treatment, but I think it is worth while research and should be continued as it seems to have had a very positive helpful effect in the treatment.

Dr. Norris J. Heckel: I would like to present two lantern slides of patients which illustrate the errors that can be made in the diagnosis of true undescended testes.

The first is the picture of a young boy who has a migratory type of undescended testes. If such a patient be included in a series treated with extract of pregnancy urine, the results are bound to be more favorable. However, such individuals need no treatment at all and usually when the patient reaches the age of puberty the testes remain permanently in the scrotum.

The next slide represents a drawing made at the time of operation. It shows, as you can see, the testis and cord bent upwards in the abdomen and bound down by adhesions to the external oblique. In our opinion, the use of hormones in such instances will not cause descent.

I should like to emphasize what Dr. Thompson has said, that this material is a powerful therapeutic agent and should not be used over a long period of time in the treatment of undescended testes.

Dr. Willard O. Thompson, Chicago (in closing): I heartily agree with what Dr. Norris and Dr. Heckel said. I do not want to create the impression that we had hoped to do much with these boys with undescended testes who were beyond the age of puberty. We have included a few of them, mostly to test the possibilities of this material as a growth stimulating agent. It seems to me that in the treatment of undescended testes the use of this material represents a definite therapeutic advance. It is important that it be combined intelligently with surg-

ery in many instances. In some of our patients in whom descent failed to occur, surgical procedures have been carried out and in every instance we have found anatomical factors making descent difficult or impossible. However, this material, by stimulating the growth of the parts involved in descent seemed to make it easier to bring the testis into the scrotum at the time of operation. While surgery is necessary in most cases of undescended testes, it works best when combined with the administration of the anterior pituitary-like principle. We believe this material should be administered prior to operation in every instance for a period of at least two months, although the exact period is still to be worked out.

STUDIES WITH HUMAN INFLUENZA VIRUS: DURING INFLUENZA EPIDEMIC OF 1936-1937

Thomas Francis, Jr., T. P. Magill, M. Dorothy Beck and E. R. Rickard, New York (*Journal A. M. A.*, Aug. 21,1937), are of the opinion that while their series of twenty-eight patients is small, they appear representative of the epidemic of influenza which occurred in New York City during the past winter. Furthermore, the results of the studies carried out among these patients were striking in their uniformity. The virus recovered during this epidemic either by the inoculation of ferrets or by direct transmission to mice was the same as that which has been isolated in recent years during epidemics of influenza in different parts of the world. The high percentage of clinical cases of influenza in this group in which the virus was actually demonstrated emphasizes the close relationship between the disease and the presence of virus. Moreover, the demonstration of virus in the nasopharynx of a patient was regularly associated with a subsequent rise of antibodies in the patient's convalescent serum, as measured by the mouse protection test or the complement fixation test. The agreement between the recovery of virus and the development of antibodies serves to indicate that the antibody response is a direct response to infection with influenza virus and can be considered as positive evidence of the disease even though virus is not recovered from the patient's throat. This is further suggested by the negative results with all procedures in four cases of incidental bacterial infection observed at the same time. It appears, therefore, that the demonstration of human influenza virus and the development of antibodies to the virus either jointly or alone may be sufficient to warrant a diagnosis of epidemic influenza. The application of these results permits the more accurate charting of the clinical boundaries of epidemic influenza and by closer association of laboratory procedures with careful clinical observation may serve as a guide in the study of other diseases of similar clinical characteristics.

SPECIFIC FEBRILE REACTION TO SULFANILAMIDE: DRUG FEVER

In a series of 134 cases of various infectious conditions treated with sulfanilamide, P. O. Hageman and Francis G. Blake, New Haven, Conn. (*Journal A. M. A.*, Aug. 28, 1937), encountered a characteristic febrile reaction (drug fever) in twenty-one cases. Characteristics that distinguish this complication are fever occurring at a definite interval after the institution of sulfanilamide therapy with or without an accompanying morbiliform rash. In the majority of instances the reaction appeared between the seventh and tenth days of sulfanilamide therapy, but in a few instances it came on as early as the fourth or as late as the thirteenth day. The onset of the febrile response was quite abrupt in many instances. Malaise, nausea, itching and tinnitus were the only subjective symptoms noted accompanying drug fever. A rash accompanied the febrile reaction in nine cases. It is usually a maculopapular erythema, but definite hemorrhagic lesions as well as urticaria-like wheals were noted. Laboratory data obtained during drug fever were variable. Leukocyte counts varied from 7,000 to 48,000, and the percentage of polymorphonuclear neutrophils varied from 63 to 95. Eosinophils were present in one-half of the cases and ranged from 1 to 6 per cent. Attempts to demonstrate the presence of precipitins for sulfanilamide in the blood serum during and following the reaction have failed, as have attempts to demonstrate sensitivity by patch and intradermal tests. Passive sensitization tests in human beings and guinea pigs have also yielded negative results. Attempts to produce anaphylaxis and skin hypersensitivity in guinea pigs have likewise failed. The similarity between drug fever and serum sickness is rather striking. The fact that the reaction occurs after the drug has been decreased in dosage or even discontinued suggests that it is not the immediate concentration of sulfanilamide in the body at the time of the reaction which is responsible for drug fever, but rather that sulfanilamide itself or in a combined or changed form is antigenic. Thus far attempts to throw light on the mechanism of the reaction have failed. As far as is known, drug fever has produced no permanent injury in this group of cases. Its occurrence, however, creates distinct diagnostic difficulties, especially in the absence of a rash and in cases in which the fever of the disease merges with drug fever.

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"That's nothing. I've a laundryman who does the very same thing."

Society Proceedings

GREENE COUNTY

A special clinical meeting of the Greene County Medical Society was held in the dining room of the Hotel Lindsey in Carrollton, Friday evening, July 23.

The subject for discussion was Blood Pressure, with special reference to Hypotension. Dr. Wm. H. Garrison, of White Hall, presented a patient and opened the discussion. A profitable round table discussion followed, lasting an hour.

Dr. A. K. Baldwin of Carrollton presented two case reports, which were very interesting and instructive.

The Society voted unanimously in favor of cooperating with the State Department of Public Welfare in the matter of a clinic for crippled children to be held in White Hall the last week in August.

W. H. Garrison,
Secretary.

Marriages

Elmer Sherman Allen, Jr., Arcola, Ill., to Miss Jane Chloe Jarman in Oklahoma City, June 30.

Fred J. Carlstrom to Miss Myrtle Heim Puckel, both of Rockford, Ill., in June.

Adelbert Leroy Spiller, Jr., Grayville, Ill., to Miss Ann Scharp of Cleveland in Princeton, Ind., in May.

Personals

Dr. Samuel M. Feinberg, Chicago, was the guest speaker before the Hancock County Medical Society in Hamilton, July 21; he discussed hay fever.

Dr. Richard Clark Benkendorf, Chicago, has been appointed superintendent of the Elmgrove Sanatorium, Bushnell, succeeding Dr. Arthur K. Drake, resigned.

Dr. Edward Ross, Alton, addressed the Madison County Medical Society at the Alton State Hospital, August 6, on "Dementia Praecox and Its Relationship to General Practice."

The resignation of Dr. Frank J. Jirka as health commissioner of Illinois, effective September 1, was announced in the newspapers, August 8. His successor has not been appointed. Dr. Jirka has held the position since 1933. He graduated from Northwestern University Medical School in 1910 and is assistant professor of surgery at the University of Illinois College of Medicine, Chicago.

Doctor Winston H. Tucker of Springfield has been appointed Health Commissioner of the City of Evanston, effective September 1, 1937. Doctor Tucker has been an Epidemiologist on the staff of the Division of Communicable Diseases of the State Department of Public Health for the past three years, and during the past year has been in charge of organization of full-time district health units throughout the state. The new Health Commissioner was selected by a committee composed of five physicians representing the Evanston branch of the Chicago Medical Society. He succeeds Doctor John W. H. Pollard, who has been Health Commissioner of Evanston for the past twelve years, and who recently resigned because of ill health. Doctor Tucker was Secretary of the Section on Public Health and Hygiene of the Illinois State Medical Society during the past year, and during the present year is Chairman of the Section.

The August exhibit in the window of Marshall Field & Company Annex Building was devoted to the subject of HAY FEVER. The exhibit included mounted specimens of hay fever producing plants and pollen, furnished by S. M. Feinberg. The window attracted considerable attention.

Drs. Paul H. Harmon, Chicago, and Winston H. Tucker of Springfield addressed the Macoupin County Medical Society at Carlinsville on Tuesday, July 27, on "Poliomyelitis" and "The Health Examination for Marriage," respectively.

Dr. Max Thorek has been made National Delegate to the International Congress of Hepatic Insufficiencies which meets in Vichy, France, in September, 1937.

Dr. Irving F. Stein addressed the Exchange Club of Waukegan, Illinois at a luncheon meeting on Tuesday, August 10, on the subject of "Prenatal Care and Birth Control."

Drs J. T. Gernon of Chicago and Paul H. Harmon, of Springfield addressed the Henry County Medical Society August 4, on "Some Clinical Experiences in the Treatment of Urinary Tract Infections with Sulfanilamide" and "Poliomyelitis" respectively.

Dr. Guy M. Cushing was the guest speaker at the meeting of the Battle Creek, Michigan, Rotary Club on August 16.

The dedication of a huge boulder to the memory of Dr. Stewart Craig Thomson took place on the lawn of Byron school, August 1. Dr. Thomson was killed in an automobile accident, Oct. 30, 1931, near Byron. The boulder weighs nearly a ton and is inscribed with words commemorating the life and service of Dr. Thomson, who exemplified the typical "country doctor," newspapers reported. August 1 would have been his sixty- seventh birthday.

News Notes

—What was said to be the seventh case of Rocky Mountain spotted fever ever reported to

the state department of health occurred in an 8-year old boy at Grafton, who had been ill since June 25, according to a newspaper account July 26. After blood specimens showed a positive reaction to the Weil-Felix test, the child's parents recalled that he had been bitten by a tick several days before he became ill.

—Camp Owassippi, near Muskegon, Mich., where 250 Chicago boy scouts had been spending a two-weeks' vacation, was closed August 16, following an outbreak of infantile paralysis which resulted in the death of one boy and the serious illness of two others, the Chicago *Tribune* reported. The boys will return to their homes, which will be placed under quarantine. So far this month, there have been four other deaths and thirty-two cases of infantile paralysis in Chicago as compared with three deaths and twenty other cases of the disease during the first fifteen days of August 1936.

—The Institute of Medicine of Chicago offers the Joseph A. Capps Prize of $500 for the most meritorious investigation in medicine or in the specialties of medicine. The investigation may be also in the fundamental sciences, provided the work has a definite bearing on some medical problem. Competition is open to graduates of Chicago medical schools who completed their internship in 1935 or who completed one year of laboratory work in 1936. The winner of the prize will be expected to present the results of his investigation before the institute at some meeting in 1938, the time to be designated later. Manuscripts must be submitted to the secretary of the institute, 86 East Randolph Street, Chicago, not later than December 31.

—The Chicago Medical Society held its annual golf tournament at the Medinah Country Club, July 28. Three hundred persons, including guests, played in the tournament. Dr. Edward A. Brucker, with a score of 79, won the Vanderslice Memorial Cup, the principal award for the officers of the society. Dr. Hubbard P. Saunders, with an 81, placed second, winning the Councilor's Trophy. Dr. Frank S. Needham, Oak Park, Ill., was third, with a score of 82. Dr. Charles H. Phifer won the Past President's Cup with a 95 low gross, and Dr. James H. Hutton, the low net with a 77. The hospital team tournament was won by Ravenswood Hospital, and Cook County placed second.

—Real Estate for Sale. Physicians' Home built in 1922 by present owner and occupant for home and office. Seven-room brick on tile residence. Natural fireplace. Large Living Room. Hot water heat. Attached garage. Lot 76x150. Situated on Main Street in one of Cricago's most thriving Western Suburbs. Practice included $15,000; terms. See H. G. Brueckner, 219 Schiller Street, Elmhurst 2023.

—Nine full time district health units have recently been set up in Illinois, the first of twenty to be financed jointly by the state department of public health and the U. S. Public Health Service under the social security act. Following are the names of the newly appointed superintendents and the counties in their districts:

Dr. Wellington C. Van Wormer, Homewood: Cook, DuPage and Will counties.

Dr. James A. Poling, Freeport: Stephenson, Carroll, Jo Daviess, Lee and Ogle counties.

Dr. Carl A. Peterson, Moline: Bureau, Henry, Mercer, Rock Island and Whiteside counties.

Dr. Sandor Horwitz, Peoria: Marshall, Peoria, Putnam, Stark, Tazewell and Woodford counties.

Dr. Loran E. Orr, Greenview: Cass, Logan, Mason, Menard and Sangamon counties.

Dr. Nettie A. M. Dorris, Paris: Champaign, Coles, Douglas, Edgar and Vermilion counties.

Dr. Joseph L. Bryan, Xenia: Clay, Edwards, Jefferson, Marion, Wabash and Wayne counties.

Dr. Roland R. Cross, Dahlgren: Franklin, Gallatin, Hamilton, Saline, White and Williamson counties.

Dr. Lewis S. Barger, Golconda: Alexander, Hardin, Johnson, Massac, Pope, Pulaski and Union counties.

—The state department of public health, through the University of Illinois College of Medicine, Chicago, and in cooperation with the educational committee of the Illinois State Medical Society, is offering courses in obstetrics and pediatrics for registered physicians of the state. A registration fee of $10 should accompany the application to take the course and checks should be made payable to the university. Applications should be sent to Mr. G. R. Moon, examiner and recorder of the Chicago Professional Schools, University of Illinois, 1853 West Polk Street, Chicago.

Deaths

Alvar Anderson, Chicago; Northwestern University Medical School, Chicago, 1932; on the staff of St. Joseph's Hospital; aged 32; died suddenly, June 23, of barbiturate poisoning.

Frank W. Baylor, Chicago; Hospital College of Medicine, Louisville, Ky., 1904; Hahnemann Medical College and Hospital, Chicago, 1907; a Fellow, A. M. A.; attending surgeon to the Alexian Brothers, Henrotin, Chicago Memorial and Columbus hospitals; aged 54; was killed, July 23, in an automobile accident near Lebanon, Ind.

Edward V. Brown, Woodstock, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1888; aged 81; died June 4, of chronic myocarditis.

John H. Gregory, Eldorado, Ill.; Rush Medical College, Chicago, 1896; member of the Illinois State Medical Society; served during the World War; aged 63; died, May 23, of carcinoma of the stomach.

John I. Groves, Champaign, Ill.; Hahnemann Medical College and Hospital, Chicago, 1880; aged 83; died, May 15, of mitral insufficiency.

Daniel Francis Hayes, Chicago; Northwestern University Medical School, Chicago, 1912; a Fellow A. M. A.; assistant clinical professor of surgery, Loyola University School of Medicine; Fellow of the American College of Surgeons; served during the World War; on the staffs of St. Annes and Cook County hospitals; aged 48; died, May 11, of coronary thrombosis.

Harry Griffith Hirschle, Canton, Ill.; Northwestern University Medical School, Chicago, 1912; a Fellow, A. M. A.; served during the World War; past president of the Fulton County Medical Society; on the staff of the Graham and Murphy Hospital; aged 49; died, May 14, in Rochester, Minn., of pneumonia.

Ira D. Kelsheimer, Paxton, Ill.; Northwestern University Medical School, Chicago, 1907; a Fellow, A. M. A.; served during the World War; secretary and past president of the Ford County Medical Society; aged 57; died, May 29, of coronary thrombosis.

Robert Crump King, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; member of the Illinois State Medical Society; aged 60; died, May 31, of heart disease.

Leroy Philip Kuhn, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; a Fellow, A. M. A.; fellow of the American College of Surgeons; president of the staff of the Lutheran Memorial Hospital; attending surgeon to the Columbus Hospital, associate surgeon to the Augustana Hospital; chief surgeon to the Lumbermen's Mutual Casualty Company; served during the World War; aged 57; died, July 23, at his summer home in Three Rivers, Mich., of heart disease.

Burton Wilson Mack, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; member of the Illinois State Medical Society; Fellow of the American College of Surgeons; assistant clinical professor of surgery, Loyola University School of Medicine; on the staff of St. Anne's Hospital; aged 66; died, June 7, at his home in Oak Park, Ill., of carcinoma of the prostate.

Joseph Leggett Miller, Chicago, since 1924 clinical professor of medicine at the University of Chicago, died suddenly of heart disease, August 6, at a mountain ranch near Great Falls, Mont., aged 69. Dr. Miller was born in Kewanee, Ill., Nov. 24, 1867. He was educated at the University of Michigan, Ann Arbor, where he received the bachelor of science degree in 1893; in 1895 he received the medical degree from Northwestern University Medical School in Chicago. From 1897 to 1924 he was at Rush Medical College, serving as instructor of bacteriology from 1897 to 1899, instructor in medicine from 1901 to 1905, assistant professor from 1905 to 1909, associate professor from 1909 to 1919, and professor from 1919 to 1924. He was secretary of the Section on Practice of Medicine of the American Medical Association from 1903 to 1908; chairman, 1908-1909, and in 1928 a member of the House of Delegates. He was a member of the Association of American Physicians, the American College of Physicians, the American Society for Clinical Investigation and the American Committee for the Control of Rheumatism of the Ligue Internationale. In addition, he had served as president of the Chicago Society of Internal Medicine and the Institute of Medicine of Chicago. During the World War, he served first as major and later as lieutenant colonel in the medical corps of the U. S. Army. In 1933 he received the honorary degree of doctor of science from the University of Michigan. He was attending physician to St. Luke's Hospital and formerly attending physician to the Cook County Hospital. Dr. Miller also served the American Medical Association as editor in chief of the *Archives of Internal Medicine* from its inception in 1909 until 1931. He was the author of numerous contributions to medical literature and was especially influential as a practitioner of clinical medicine.

Frederick William Risser, Strasburg, Ill.; St. Louis Medical College, 1886; aged 74; was found dead, May 7, of cerebral hemorrhage and arteriosclerosis.

Edward Warren Sikes, Freeport, Ill.; Hahnemann Medical College and Hospital, Chicago, 1902; member of the Illinois State Medical Society; president of the Stephenson County Medical Society; on the staffs of the Evangelical Deaconess Hospital and St. Francis Hospital; served during the World War; aged 61; died, May 5, in the Presbyterian Hospital, Chicago, of acute ascending suppurative hepatitis.

Bayard Taylor Stevenson, Harvey, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; a Fellow, A. M. A.; on the staff of the Ingalls Memorial Hospital; aged 64; died May 29.

James Edwin Watson, Alton, Ill.; American Medical College, St. Louis, 1894; member of the Illinois State Medical Society; aged 69; died, May 10, of heart disease.

Joseph William Zeh, Chicago; Chicago College of Medicine and Surgery, 1909; aged 64; died, May 12, of a self-inflicted bullet wound.

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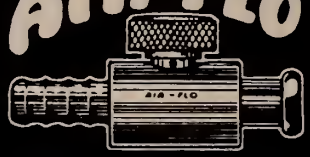
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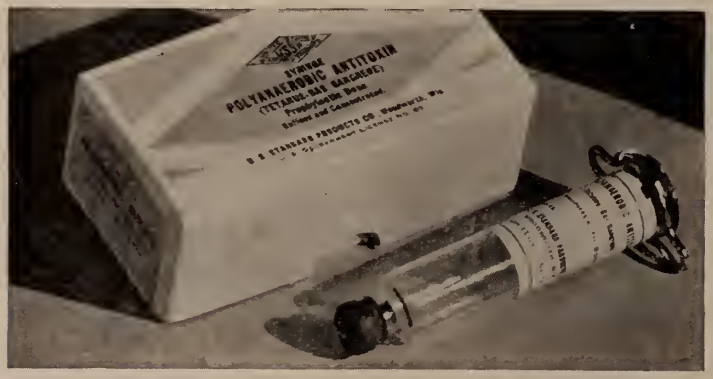
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Book Review

Recent Advances in Pulmonary Tuberculosis. By L. S. T. Burrell, M.D. Third edition, with 48 plates and 22-text figures. Philadelphia. P. Blakiston's Son & Company, Inc., 1937. Price, $5.00.

This work brings up-to-date the progress made in the care of tuberculosis since the second edition.

The book has in large part been entirely rewritten. New chapters dealing with infectivity and immunity and with bovine and childhood tuberculosis have been added. The chapters on radiology and surgical treatment have been mostly rewritten.

Your Diet and Your Health. By Morris Fishbein, M. D. New York, London, McGraw-Hill Book Company. 1937. Price, $2.50.

In this work the author has examined the claims of several of the most widely publicized of the diets offered the public, weighs their merits, and in some cases criticizes them, showing that they are grossly unscientific. The major portion of the book is concerned in setting down, in simple, unequivocal statements, the most up-to-date and generally recognized truth of what is now known about diet.

Pathology. By E. B. Krumbhaar, M.D. With 18 illustrations. New York. Paul B. Hoeber, Inc. 1937. Price, $2.00.

This work is one of a series of handbooks which under the general title of "Clio Medico" aims at presenting in a concise and readable form a number of special phases of the long and complex history that underlies the great edifice of modern medical science.

Russian Medicine. By Horsley Gantt, M.D. With 12 illustrations. New York. Paul B. Hoeber, Inc. 1937. Price, $2.50.

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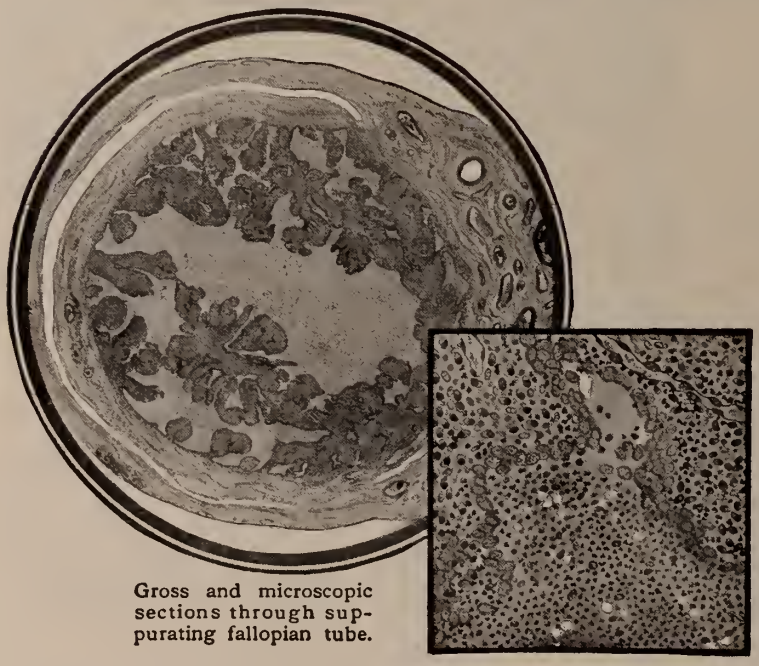
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OCT 1 1937
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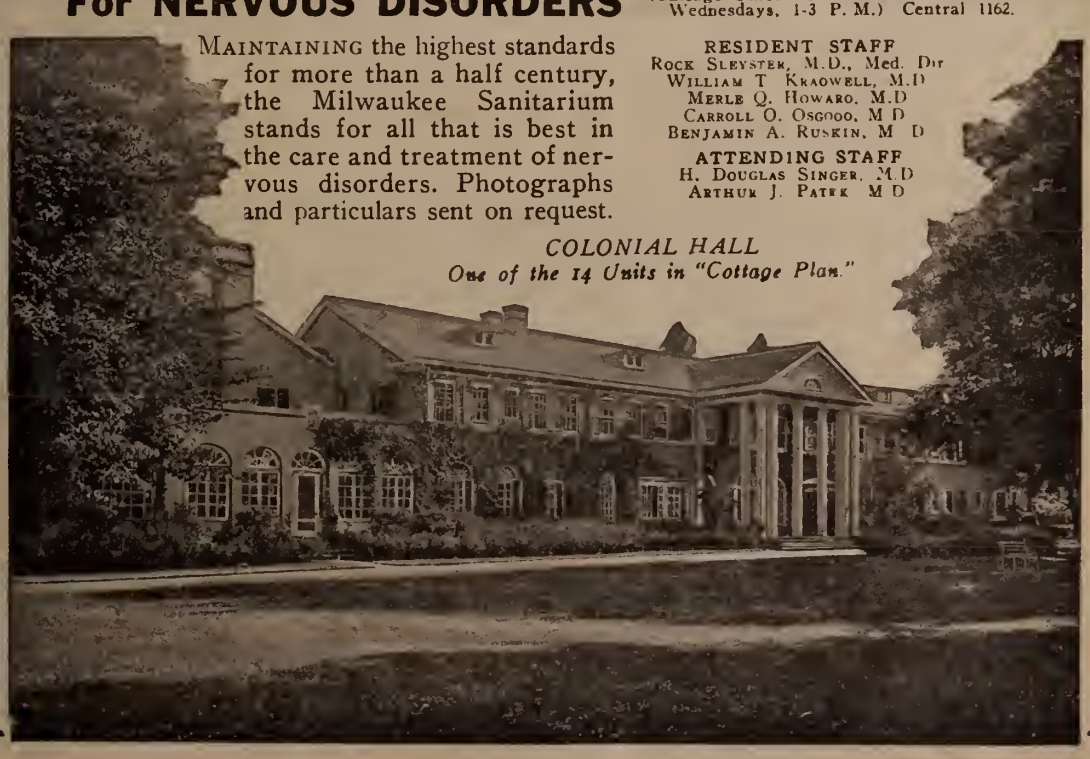
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Vitamin A Deficiency

May Result in

Impaired Light *and* Dark Adaptation

of the Human Eye

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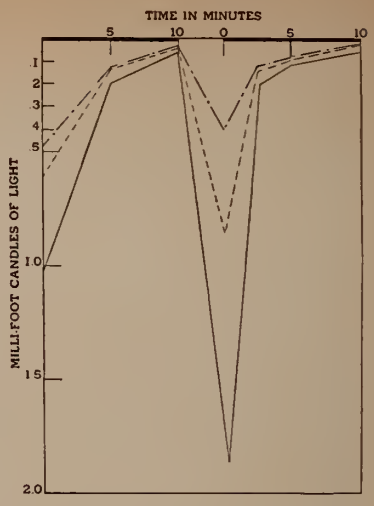
While xerophthalmia is comparatively rare in this country, an increasing literature indicates that milder degrees of avitaminosis A are more prevalent than has been suspected. [2, 3, 4, 5, 6, 8]

Data have been published[3] which indicate that even mild degrees of vitamin A deficiency result in impaired light and dark adaptation, accompanied by an impaired visual light threshold.

It has been observed that photophobia[3], reduced visual acuity[4], sensitivity to glaring lights[3] and reduced vision at low levels of illumination[7, 3] sometimes accompany avitaminosis A.

Clinical tests[2, 4, 5, 6, 8] have shown repeatedly that in vitamin A deficient subjects, the ingestion of Smaco Carotene-in-oil, in sufficient quantity, is generally followed by an improvement in the visual light threshold, improved light and dark adaptation, and relief from photophobia where this is a result of impaired light and dark adaptation.

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The chart on the right shows progressive improvement in the visual threshold, in both light and dark adaptation, following the ingestion of Smaco Carotene-in-oil over a period of thirty days.

Thereafter, prophylactic dosages of Smaco Carotene-in-oil or a suitable diet may be employed to supply the vitamin A activity needed to maintain the visual threshold at optimum level.

It is recognized, of course, that many people obtain sufficient vitamin A from dietary sources and do not need a supplementary intake of vitamin A activity. The suggestions in the two preceding paragraphs, therefore, apply only in those cases in which vitamin A therapy seems indicated.

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CANNED FOODS IN THE CONTROL OF LATENT AVITAMINOSES

• In June, 1935, this space was devoted to a discussion of some of the general aspects of latent avitaminoses. It appears pertinent to report some of the more recent ideas in regard to this important field.

Considering the subject of avitaminoses in its entirety, the modern medical attitude is aptly expressed by the following statement: "... the mild or latent forms of the vitamin deficiencies are more important in practice at present than the fully developed cases. The latter are uncommon, are easily recognized and are usually promptly and adequately treated. On the other hand there is reason to believe that minimal or mild forms of these diseases are much more frequent, often escape recognition and, because of their insidious effect on large numbers of people, constitute a more serious problem than the occasional advanced cases." (1)

Consideration of this statement brings home the importance of optimum vitamin intake. Students of nutrition agree that in order to achieve this objective, a liberal and varied diet must be available. The constituents of the diet should be wholesome foods, the preparation of which has not materially reduced their intrinsic nutritive values. Commercially canned foods fall well within this classification.

Modern canning procedures are designed to protect the vitamin potencies of the food. Recent reports in the scientific literature indicate the success attained in retaining vitamin values in commercially canned foods. (2)

In general, the control of latent avitaminoses and the advancement of positive health appear to be largely matters of practical application of facts made available by the modern science of nutrition. We wish to direct attention to the part which the wide variety of canned foods available on the American market may play in establishing dietary regimes calculated to control the avitaminoses.

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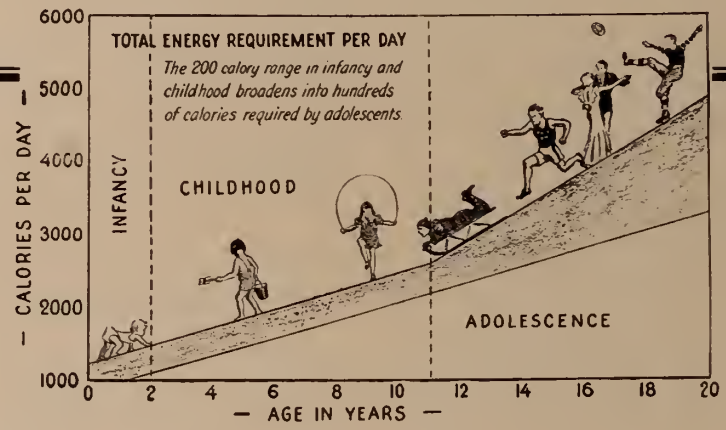
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This is the twenty-ninth in a series of monthly articles, which will summarize, for your convenience, the conclusions about canned foods which authorities in nutritional research have reached. We want to make this series valuable to you, and so we ask your help. Will you tell us on a post card addressed to the American Can Company, New York, N. Y., what phases of canned foods knowledge are of greatest interest to you? Your suggestions will determine the subject matter of future articles.



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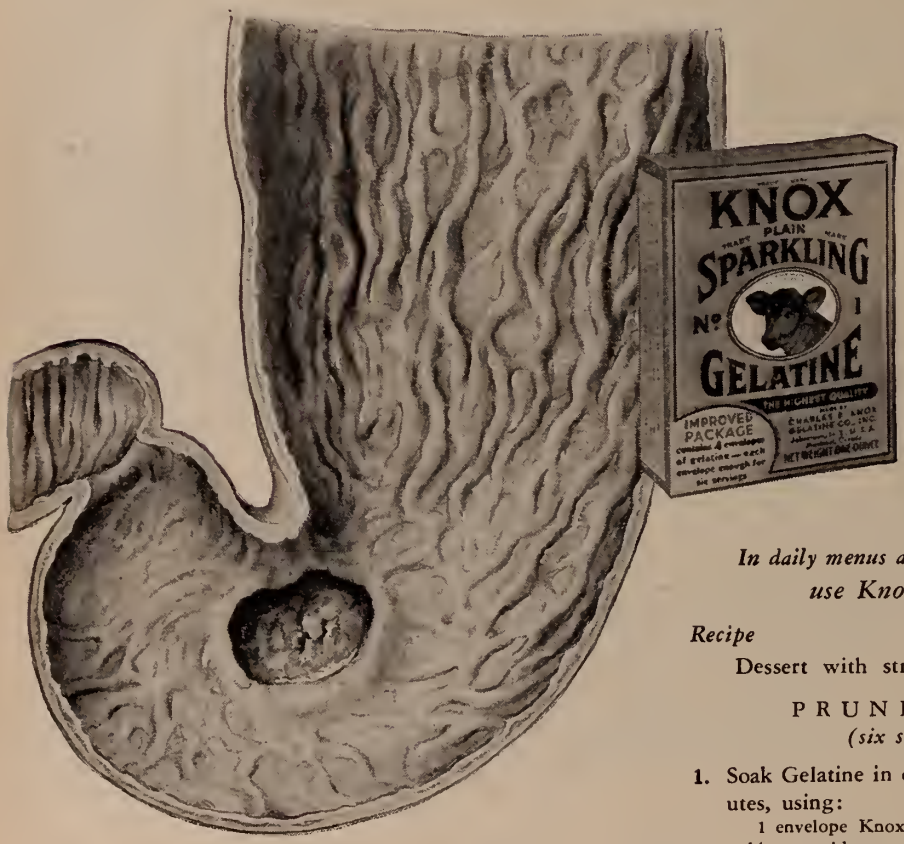
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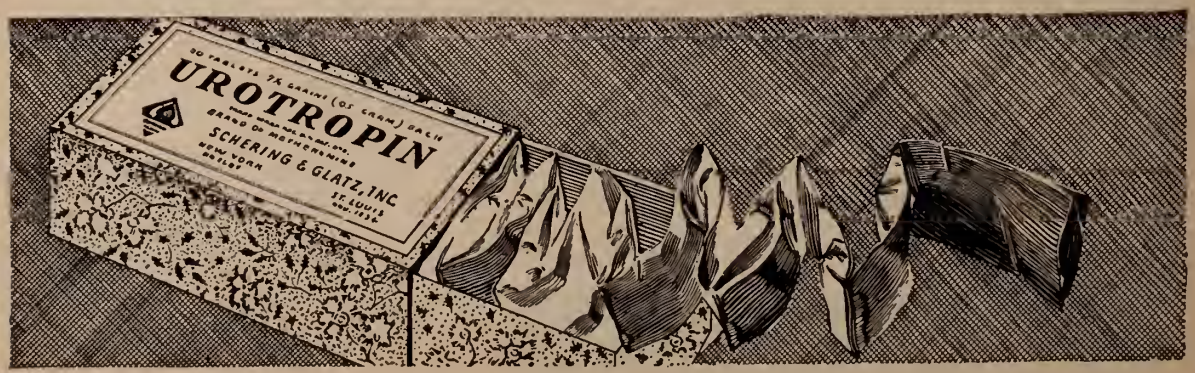
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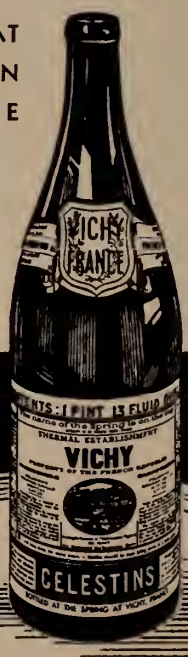
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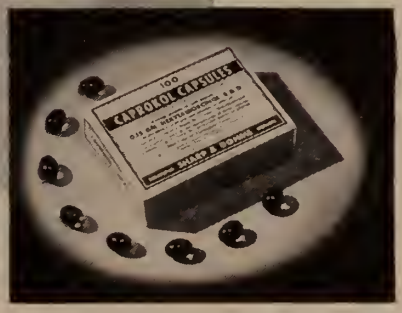


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Editorials

POLITICAL MANIPULATIONS ARE ENDANGERING THE VERY EXISTENCE OF OLD AGE SECURITY

Social Security, to which Abraham Epstein, since 1927 executive director for the American Association for Social Security, says: "We have been converted overnight and which is the newest of all new industries in this new country of new industries, is according to Epstein himself, "being killed with kindness." Let us hope Mr. Epstein is correct about the slaughter.

Says Mr. Epstein, writing in *Harper's Magazine*: *"Social Security, flower of the New Deal, is here."*

The American weakness for panaceas is Mr. Epstein's conclusion for this sudden national acceptance of a cure-all for poverty in the future if not in the present nor in the past. He blames also our national appetite for advertising slogans and our everlasting Barnum complex. Mr. Epstein connotes that the American citizen felt the depression more keenly than did any other nation on earth because of our "Higher standard of Living;" which is exactly what all the socialists and theorists fail to take into account when they try to force upon American citizens the crutches for a high standard (?) of living that Europe is adopting with pretty poor results.

The depression was so drastic, it so completely undermined everything that through the years America had come to regard as *security* that in the search for salvation the poor deluded population turned to ineffectual schemes that do nothing more than offer a relief that is worse than the disease. This is like the parched man who slakes his thirst at a poisoned well or fever-laden stream. In his extremity, he grasps at the first seeming succor.

In December, 1935, in *Harpers,* Epstein wrote a most able article in which he told of the "implications and limitations of the Social Security Act." Still quoting him directly it is interesting to note that he says of his more recent contribution, the article remarking that we are

killing with kindness the old age security act, he says in part: "That first article showed that instead of seeking greater security by *increasing the purchasing power of the masses as all sound social insurance programs have done the insurance features of our Act tend to aggravate insecurity by placing practically the entire financial burden upon the poorest sectors of the population.* Instead of diverting some portion of the income of the higher brackets which is not used for direct consumption, into mass purchasing power our insurance program merely sets up a system which *obliges the poor to share their poverty in order to sustain the impoverished.* In taxing only the wage-earners and their employers, the Act not only relieves the wealthy from their share of the social burden of indigency which through the poor laws, *they have helped to carry for over 300 years,* but makes possible only scant protection to the needy. It ignores the ten million present unemployed and offers little help to the future unemployed. Furthermore the heavy direct withdrawals from workers' wages can only result in a further reduction of mass purchasing power. Payroll taxes will be passed on to the consumers in the form of increased living costs and will intensify the displacement of men by machines in the attempt to reduce labor costs."

Epstein pursues this theme further remarking that a few years ago no one would have believed that the United States today would be thus far on the road to "Social Security." He cites that the first annual report of the Social Security Board showed that in the first eleven months of its existence about a million and a half individuals were aided (about two-thirds of these aged persons) at a cost to the Federal Government alone of $109,000,000. He does not say what percentage of these funds was eaten up by political job-holders. All but seven States received Federal Funds under the Act and over twenty-two million workers were registered for their old age insurance accounts. He adds too, that by the end of 1936 unemployment insurance laws enacted in 35 States and the District of Columbia covered about eighteen million workers.

Epstein has figured out that the Social Security Act covers ten different insurance and welfare plans based on three different philosophies of governmental operation. Except in Wisconsin, unemployment insurance benefits will not be paid before 1938 and the old age contributory benefits do not begin until 1942.

Since the Social Security Act began to function here is the difference in one instance, but one which is typical.

Up until the Social Security Act was signed on August 14, 1935, total expenditures for that year in old age pensions from twenty-seven states amounted to something like $66,000,000. At the end of 1936, forty states, the District of Columbia and Hawaii, had increased the number of pensioners from 403,762 persons in 1935 to 1,107,479 persons in 1936 and the pension ante had jumped to almost $155,000,000 not including $600,000 more paid out in such pensions by Arizona that had an argument with the government over its plan for such aid. *In other words, in one year the number of pensioners practically trebled, the expenditures increased two and one-half times, and the number of pension paying states was increased by something less than fifty per cent.*

Federal aid was supposed to equalize old age assistance throughout the country but figures do not reveal that it has achieved this end. As a matter of fact the reverse seems true. In December, 1935, the amounts of the pensions ranged from $4.35 to $23.15 per month. In December, 1936, the gamut ran from $3.92 to $31.96 per month according to whether a man lived in Mississippi or California. Colorado paid an average pension of $27.65 per month and Arkansas only $9.01. Even counties in the same state fell out of plumb. Thomas Co., Nebraska, paid average pensions of $7.38 per month and Gosper Co., Neb., pensions of $21.35 per month. Everywhere these same divergences maintain. They are noted in age, class and number of pensioners as against the comparative wealth and population of the various states and everywhere the difference is discouraging and disproportionate. All of which goes to show that the civilian old age pension list is behaving like all other of our pension lists. Or to quote Epstein:

"The striking divergence in the number of pensioners in the different states is simply due to the fact that our old age security system is developing in the traditionally 'American Way' . . . it is in line with our traditional jobholding philosophy—'To the victor belongs the spoils' which has characterized practically every admin-

istration since Jackson. In other words it is reverting to our typical spendthrift and generous way of using pension systems for the political good they do. . . Significantly the greatest number of pension bills are in the States which already have the most liberal laws. Legislators everywhere are outbidding one another in order to appease the appetite of organized pension blocs."

Mr. Epstein cities at length and with interest the flagrant political manipulation of the pension plans in Ohio and Colorado. In Ohio the monthly State expenditures increased in a year (*and after an election*) from a million a month to almost $2,400,000. In Colorado there was a thirty-six per cent increase in one single month or a jump from $460,325 to $628,312. Colorado has amended its Constitution so that the minimum old age pension is $45 per month and the maximum as "blue sky" as many a mining stock has been. Texas has the most liberal pension act in the country—and on the first day of its operation 40,000 were pensioned. That was only 12,000 less than New York State had pensioned in five years. Oklahoma's superlatively large number of pensioners astonishes even the state census takers. Kentucky and Illinois have both become pension conscious, since, as Epstein remarks, Federal aid was up before the public in an election year. "Illinois," says he, "which for fifteen years had withstood pressure for old age pensions enacted a law in 1935 when federal aid became imminent. Pension payments delayed for many months were rushed as soon as federal cash enabled the State *administration to appoint some 400 state investigators* during the campaign to "assist local officials," although by law they were supposed to be appointed by county boards. Similar events occurred in many other States. . . Indeed the pressures of 1936 were not for the realization of the fundamental aims of the Social Security Act but simply to boost pensions in the traditional American manner."

And again: "The political manipulations are indeed endangering the very existence of old age security. As the facts are revealed the universal approval which greeted earlier and well-administrated laws is being succeeded by nationwide protest against the entire pension movement. . . While there is no longer any question of the need for self-respecting assistance for the dependent aged it is also plain that we cannot hope to operate a system of old age security in the traditional American fashion."

Mr. Epstein would seem to feel that what is typical of the fashion in which old age pensions have been handled is typical of the management of other current relief projects. Relief and aid and all the other New Deal-isms are well called a political pie counter. And political pie comes from taxes and taxes alone. The lesson of pre-Revolutionary France is forgotten by post-Revolutionary America. God grant we are not now again "pre-Revolutionary"!

Epstein says that Social Security legislation of a sane content is threatened on two fronts. "On the one side are the interests which are against the idea altogether, and on the other the political fraternity that see in pensions and social insurance the source of another slush fund."

He forgets the third front—the individual who is still an old-fashioned American in his heart and in his ideals and who believes that the doctrines of *self-reliance* and honest politics that built up the nation may yet repair and rebuild it, but Epstein is right when he says:

"Prosperity and pensions are not synonymous."

WHAT SOCIALIZED SYSTEMS OF MEDICINE ACTUALLY DO TO THE PATIENT AND THE PHYSICIAN AS TOLD BY EYEWITNESSES CHAFING UNDER THE BURDEN

The voice of experience knows that of which it speaks. So it will not be amiss for even partial advocates of Senator James Hamilton Lewis' purposed federalization of physicians to hearken to a few eye-witness' statements as to how government control of medicine works out.

From American physicians studying medicine in various European capitals came the direct reports, the EYEWITNESS STATEMENTS of current results of this compulsory health insurance which so many enemies of American ideals are determined to foist upon the American public. Embodied in an editorial published in the July issue of *"Ars Medici,"* official journal of The American Medical Association of Vienna, we consider the editorial worthy of republication here.

The shock experienced when we heard the statement

of J. Hamilton Lewis at the A.M.A. in Atlantic City, was not fully ameliorated when we learned that Mr. Lewis was not officially representing the government because we, of the A.M.A. of Vienna, feel that his speech was a trial-balloon.

No one is in a better position to observe and judge socialized medicine than doctors who are studying in Europe—in the very midst of this institution. There are physicians among us who have studied in all parts of the world and have had the opportunity to study socialized medicine from all angles as well as elaborately discuss it with authorities. In Austria nearly 90 per cent of the population are members of official or private sick-assurance companies. As a result private practice has nearly ceased to exist. The compulsory state-insurance alone comprises 2,000,000 persons, that is about one-third of the total population. The efforts of the Austrian physicians to limit state-insurance to a certain higher income group ($160 a month) yielded no result so that a situation remains allowing directors of industrial enterprises, banks, the highest state employes and their families, etc. medical treatment, medicaments, operations, medicinal baths, health resorts, etc., nearly free of charge. The insurances cover a maximum income of $80 monthly regardless of the actual income, so that an income of $400 leaves $320, which is not considered by this method of insurance. 20¼ per cent of the income of employes and workers is deducted for social insurance, that means an income of nearly $100,000,000 for the company which insures the merchant-manufacturer-professional group alone.

ADVANTAGES ENUMERATED

Advantages: Medical help is assured along with medicaments, operations, hospital fees, bandages, apparatus, spectacles, care of teeth, baths, recovery homes, etc., and in case of inability, financial help for a certain time, i. e., the above insured, from the 4th week of illness up to one year, gets a compensation, and if ill longer, he is declared an invalid and receives a pension (Rente), which he of course again loses on getting well.

MANY BAD FEATURES LISTED

Disadvantages: A new element has been interposed between patient and physician, the bureaucratism, which destroys the essential factor in the relationship—the confidence. The insureds have the tendency to get as much as possible for the money they regularly pay. A physician has to work not only in the interest of the patient (his essential duty) but also to protect the interests of his company. The sick fund creates unwillingness to work and the old truth, "Cure is accelerated by the will to work and earn again," goes astray. The desire for recovery is undermined by the possibility of getting money without working. In periods of prosperity the number of the disabled decreases and, conversely, during a crisis, it rises enormously. The patient prefers the physician who makes the least difficulties for him in his effort to get support without working, i.e., confirms his disability. This is best realized in an incident which occurred a few years ago in Germany. The government ordered a re-examination when the number of the disabled had risen to 1,250,000; before the examination, 400,000 of these declared themselves able-bodied and another 300,000 of the re-examined were found to be able-bodied. Socialized recovery and accident stations are breeding-places for malingerers. Socialized medicine is a fine thing—in prosperous times for a community free of laziness, lying and egotism.

The actually sick person becomes prejudiced for numerous reasons: The sick fund physician is always in a hurry; some of them have to handle 40—50 patients in two to three office hours (how many cancers are overlooked!) and visit several dozens in the morning and evening. Payment is bad: about 22 cents for an office consultation, 36 cents for a visit to the patient, of which again after deducting street-car fare, only 22 cents remain. Of course this "big business" of a handful of the chosen allows the vast majority a small number of patients monthly, which makes an income of about $100 a month, as the reader can well judge, impossible. Most of them earn only $40—$60. The sick funds spend for physicians only 12 per cent of the money taken from the insured; that is not more than for their own management; some spend almost as much for the administration, as for the doctors and medicaments. In order to enforce economy and protect themselves from "overhealing" (Überarztung), the sick funds allow only an average of 2½ consultations, 1 visit and 46 cents for medicines per case monthly. Therefore, if the physician has had too many simulants and almost-sick cases (Bagatellefälle) in the current month, he has no more paid-time and paid-medicaments, i.e., time and medicaments which the insurance company covers for serious cases. In times of epidemics a 5—8 per cent increase in the number of consultations and visits is allowed. All this results in mistrust being the leading feature in the relationship of sick fund—physician—patient. In order to protect themselves from the reproach of overhealing, the physicians are forced to turn over to the hospital even patients who could easily be treated at home, viz.: pneumonia, pleurisy, which in turn implies higher costs, but leaves the doctor room for other patients and medicaments. Visits in excess of the prescribed maximum are not paid for by the sick fund, and the difference between the permitted maximum and the actual expenses for medicaments is then deducted from the physician's bill so that the physician is often forced to pay for the drugs of his serious cases. It is therefor clear that only the simplest and cheapest drugs are prescribed. It is also clear that the patient, knowing these conditions, now mistrusts the physician and the efficacy of the prescription, so that the very important psychological factor in the prescription is lost. It is interesting to note that, owing to the above, the sick fund of the civil employees is enabled to earn money on the very sickness of the insured. Since the doctor is not paid for visits in excess of the prescribed minimum, this company, whose form of insurance requires that every patient pay 10 cents to the fund for a consultation, 16 cents for a visit of the doctor, 30 cents for a specialist's consultation, regardless of how often the insured has had to resort to these

in a month, has an income through the deduction of the doctor's fees for plus-visits.

DOCTOR BECOMES POLICEMAN

The physician tends to hold the patient as long as possible, within the limit of the maximum allowed, before sending him to a specialist or an institute. This is only possible with the permission of the chief physician of the sick fund, who protects only the interests of his institution and thus grants as little as possible, even if he has to go against the practitioner's advice—he's a policeman rather than a physician. And as pull generally plays an important role in every institution it is not surprising to hear from general practitioners that they are unable to bring really needy patients to one of the most luxuriant homes of the sick fund or health-resorts. The perennial answer is "all places are occupied."

Almost all sick funds have their own outpatient department for physical therapy, venereal diseases, gynecology, pediatrics, dentistry, etc., where a wholesale treatment is discharged upon the masses of the waiting patients. The corresponding private institute and specialist therefore stand helplessly by with little or nothing to do. Thus we find distress and discontent on the part of the insured and despair on the part of the physicians, whose very existence is endangered. The physicians cannot help themselves, for, in consequence of their pauperization, their social organization is of no value. They have become the Chinese coolies of the sick fund companies, and the most deplorable thing is the relative loss of their reputations and the confidence of their clients. The specialists fare even worse, since they cannot get any patients directly but only on recommendation of the practitioner to the chief physician. A few days ago a renowned Viennese professor told me after his office hours, *"Hodie nemo fuit!"* (no one was here today). I quote only a few figures of the latest schedule to show how poorly they get paid: first consultation, 80 cents; the following ones, 50 cents; appendectomy, $24; treatment of dental root, $1.00; only pathological births are paid for. Not paying for a normal birth induces the physician at times applying such means as forceps, only in order to get a fee. The surgeon only treats minor surgical cases, since major cases are treated free in the hospitals.

Wherever the State goes beyond its natural boundaries, vast disadvantages result for the community.

WHAT OTHERS THINK

Dr. E. Liek says in his book, Der Arzt und seine Sendung (The Physician and His Mission), "Nothing has fanned the embitterment and hatred of the workingman against the State more than the pernicious system of social insurance. The reason is clear: the State takes away one-fifth of his income, in return for which it promises protection in all accidents of life—illness, invalidity, old-age, unemployment, etc.—and cannot keep its promise. An atmosphere impregnated with the mania for pensions and unwillingness to work prevails in the recovery homes and the whole vast imposing edifice of social insurance."

Dr. Wagner, official leader of the German physicians, recommended to the German physicians at a convention the following method for the treatment of dental roots: Put in an arsenic filling and order the patient to come again in a few days. The changes (pains) which result will induce the patient to have the tooth extracted. In this way the treatment of the root, since the sick funds refuse to pay what it really costs, will be avoided.

In Hungary, the united efforts of the physicians, led by the valiant professors of the medical faculty of Budapest, have protected the country from a hypertrophy of socialized medicine.

The U. S. A. has social need, too; there are 14,000,000 unemployed, and responsible men are seeking a cure by introducing this European social hypertrophy. If American physicians think that this system will be of advantage, they are grossly mistaken. Ninety per cent of the Austrian physicians are unable to make a living under it; 400 (10 per cent) Viennese physicians cannot even afford a telephone and have to resort to charity. The socialized insurance did more harm to the physician than the financial crisis.

The American people have trusted the politicians with alcohol control, with its resultant failure and graft. To put the care of the sick under the direction of the state or national politics and their medical puppets would certainly not be advantageous to the patient or the doctor. To trust the care of the sick to corporations for profit where the doctor becomes a chain store clerk under the direction of big business would not help the patient.

If the American people could see what American doctors are seeing in Europe, they would certainly join their forces with those of the doctors to prevent State Medicine in America.

Physicians, guard those possibilities which still enable you to make a living and to give your patient careful, honest attention!

Caveant consules ne quid detrimenti capiat res publica!

MINUTE DEGREE REGIMENTATION OF THE MEDICAL PROFESSION

"FOOTSTEPS ON THE SANDS OF TIME" or the History of America as Communistic Influences Might Write It According to the Joint Resolution to Socialize Medicine Presented in the Senate of the United States on July 28, 1937 by the Senator from Illinois, James Hamilton Lewis.

A succinct setting forth of the law and a summary of the penalties for violations thereof is expressed nowhere so well as in the crime itself as committed by that section of non-American citizens who were influential in causing the Senator from Illinois, James Hamilton Lewis

to introduce into Congress the Joint Resolution reprinted below.

75th Congress, 1st Session S. J. Res. 188

IN THE SENATE OF THE UNITED STATES

July 22 (calendar day, July 28), 1937

JOINT RESOLUTION

To provide medical aid for the needy and the stricken with illness who are unable because of poverty to provide treatment and hospitalization; also to establish all licensed medical practitioners as civil officers of the National Government

WHEREAS the Federal Government has recognized its social responsibilities to its citizens by the enactment of the Social Security Act; and

WHEREAS an extension of such responsibilities is necessary to provide adequate medical care and attention for the impoverished and needy to assure the full enjoyment of social security;

THEREFORE BE IT RESOLVED by the Senate and the House of Representatives of the United States of America in Congress assembled, That all physicians and surgeons who practice the profession of medicine or surgery in the United States or its territories, are hereby declared to be civil officers of the United States for the purposes of this joint resolution.

SEC. 2. Any such physician or surgeon shall render such medical or surgical aid requested of him by any impoverished individual who is in need of such aid, and, where necessary, to order the hospitalization of any such individual. Any hospital to which such an order is directed shall, insofar as its facilities permit, provide for the hospitalization and care of any such individual in the manner best adapted to accomplish his recovery.

SEC. 3. Any physician, surgeon or hospital rendering aid to impoverished individuals as provided in Section 2, are authorized to make such charges for such aid as are reasonable and just. Bills for such charges shall be submitted to the Social Security Board, which is authorized and directed to pay them, under such rules and regulations as it may prescribe.

SEC. 4. (a) It shall be unlawful for any physician, surgeon, or hospital official or employee to refuse to render aid as provided for in this joint resolution, or to make exorbitant or excessive charges for such aid, or to make any charge against an individual to whom aid has been rendered in addition to the charge paid by the Social Security Board.

(b) It shall be unlawful for any person fraudulently to represent that he is impoverished for the purpose of receiving aid under this joint resolution.

(c) Any person violating any of the provisions of this joint resolution shall be deemed guilty of misdemeanor and, upon conviction thereof, shall be fined not more than $1,000.00 or imprisoned not more than three months, or both.

SEC. 5. The Social Security Board shall have power to make such rules and regulations as may be necessary to carry out the provisions of this joint resolution.

SEC. 6. There is hereby authorized to be appropriated such sums as may be necessary to carry out the provisions of this joint resolution.

Note: Under the operation of such a law the liberty and individuality of physicians will be taken away and the doctor will become a small cog in a big political machine.

AN OPEN QUESTION TO MEDICINE AND THE LAYMAN

When science is destroyed by the greed of commerce and the egotism of ignorance, what will happen to humanity, bereft of its most understanding friend—ethical medicine? That day is forecast, for the efforts of societies and lay boards are directed everywhere toward the destruction of the professional status and its replacement by an industrial contract.

The question of a free choice of physician is antagonized and restricted by the insurance administrator of the menacing "state medicine" already at our door, since only those doctors will be chosen, it is understood, who are liberal with certificates of incapacity for work and generous with drugs, since all compulsion insurance schemes lead to expensive over-medication. *German physicians report that the insured patients use ten times as much medicine as the uninsured.*

State medicine, if imported from Europe, as the Crusaders now demand will be state medicine just the same. Its evils will continue for it will not be denatured by merely crossing the Atlantic.

SUGGESTIONS FOR THE CARE OF INFANTILE PARALYSIS CASES

The committee organized by the Chicago Board of Health to outline the proper procedure in the handling of cases of infantile paralysis to prevent crippling insofar as possible, makes the following suggestions and recommendations:

"*Be It Resolved,* that:

Chicago has complete facilities and the medical personnel equal to any in the United States for the proper care of patients with infantile paralysis.

It is not advisable to transport early cases to distant parts of the country by railroad or other means of transportation, because the most important factor in the early treatment is complete rest.

The committee recommends:

1. Complete rest in bed;

2. Immediate support of the paralyzed muscles by proper splints or braces;

3. That the patient be kept warm. This can easily be accomplished by woolen blankets which are kept off the feet by a simple frame;

4. That electrical stimulation be avoided;

5. That massage be avoided;

6. That all unnecessary movements of the limbs and body be avoided;

7. That the patient be not allowed to sit or stand;

8. That parents remain calm in the present situation since paralysis in practically all patients improves very definitely under proper treatment. The improvement may continue steadily for several years. and

9. That all patients, whose aftercare is carried on in their homes, have, when the proper time arrives, the services of a qualified physical therapist, who will work under the direction of a doctor. The Visiting Nurse Association has many nurses who have been especially trained to give these treatments.

CARDIO VASCULAR DISEASE AND VITAMIN DEFICIENCY

S. Weiss and R. W. Wilkinson, Boston, in Annals of Internal Medicine, July, 1937, offer the following information relative to the nature of Cardio-Vascular disturbances:

To determine whether cardiovascular disturbances in nutritional deficiencies exist as a clinical problem, they investigated the records of some 900 patients suffering from various types of nutritional deficiency, including general malnutrition, chronic alcoholism with or without polyneuritis, pellagra, neuritis of pregnancy and diabetes. There were eighty-five cases in which cardiovascular dysfunction of varying severity could not be ascribed to the usual etiologic factors. Because all instances in which organic lesions of the cardiovascular system existed were eliminated and because many of the cases were observed by physicians not experienced in cardiovascular problems, the number selected must be considered minimal. This conclusion is corroborated by the fact that within a period of two years the authors have personally studied thirty-five patients from a total of 5,506 admissions to two general medical services in this hospital. The observations here presented are therefore based on a total group of 120 cases. The cardiovascular disturbances caused by nutritional deficiencies do not form a rigid clinical syndrome. Right and left ventricular failure, arteriolar dilation and increased blood flow, peripheral circulatory collapse and shock, singly or in combination, have been observed. The onset of the disease may be sudden or gradual. Patients with the severe form of the disease show a tendency to fever, to bronchopneumonia and to acute fatal circulatory collapse. Under therapeutic measures such as rest, cardiac drugs, diets rich in vitamin B_1 or crystalline vitamin B_1, all the cardiovascular disturbances usually revert to normal. The clinical symptoms and signs, the blood chemistry, the myocardial changes, the hemodynamics and therapeutic responses correspond to those described in "beriberi heart" in the Orient. The disease as observed in Boston, however, is characterized by more varied and more generalized involvement of the cardiovascular system. Vitamin B_1 deficiency plays a primary part in the precipitation of the disease. Alcohol also is a significant factor, not only because it supplies calories without vitamin B_1 but also because its metabolic effect is similar to that of a pure carbohydrate. The rate of response to vitamin B_1 in "alcoholic" and "nonalcoholic" beriberi varies. The arteriolar system shows a more rapid change than the heart. The cardiovascular disorder usually disappears before the polyneuritis. The condition described bears pertinently on the clinical behavior and the mortality rates of alcoholic and nonalcoholic patients with vitamin B deficiencies (beriberi and pellagra). It may explain the poor reaction of these patients to increases in metabolic rate, such as occur in febrile infections, in hyperthyroidism or under surgical operations.

DEGREE AND PREVALENCE OF VITAMIN A DEFICIENCY IN ADULTS, WITH NOTE ON ITS EXPERIMENTAL PRODUCTION IN HUMAN BEINGS

Vitamin A deficiency is common in adults and varies from a photometrically detectable phase to the complete clinical syndrome. In a group of 162 medical students studied by Harold Jeghers, Boston (*Journal A. M. A.*, Sept. 4, 1937), 35 per cent had low photometer readings and 12 per cent had clinical manifestations of the deficiency. The chief manifestations, in the order of their frequency, were night blindness, photophobia, dry skin, dry conjunctivae, blepharitis and follicular hyperkeratosis. The factors producing the deficiency were analyzed and showed that the skipping of meals and poor choice of foods were chiefly responsible. After dietary analysis it was concluded that 4,000 international units of vitamin A daily represent the minimal requirement for a healthy adult. Infections were more numerous and severe among the deficient students. Further evidence that it is dangerous for the hemeralope to drive an automobile at night was obtained. Photometric evidence of night blindness appeared in six days and subjective evidence in five weeks after the production of a pure vitamin A deficiency in an experimental subject. Night blindness preceded gross epithelial changes.

WHAT HE WAS CALLED

Little Louise was lost and had been brought into the police station. The officers tried in every way to learn her name. Finally one of them said:

"What names does your mother call your father?"

"Why," said Louise, very innocently, "she doesn't call him any names; she likes him."—Association Men.

MEDICAL ECONOMICS

H. M. Camp, M. D.
E. P. Coleman, M. D.
John R. Neal, M. D.
I. H. Neece, M. D.
W. M. Hartman, M. D.

Edited by the Committee on Medical Economics
of the
Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

R. K. Packard, M. D.
Ralph Peairs, M. D.
C. B. Reed, M. D.
C. S. Skaggs, M. D.
C. E. Wilkinson, M. D.

Address all letters and communications to the Chairman.

Considerable of the time of the last meeting of the Council of the Illinois State Medical Society was spent in discussing the many economic problems of the medical profession. In fact, the majority of the topics under discussion came under this classification.

Naturally, the main interest was in the Resolution introduced in the 75th Congress by Senator J. Hamilton Lewis of Illinois. It is to be hoped that every member of the medical profession in Illinois has read this resolution. There is no excuse for not reading the same as it has been available in practically every medical journal published since its introduction. The concensus of opinion was that the medical profession must assume a more militant attitude than it has in the past, if we are to successfully combat this avowed desire of the New Dealers. Plans are now being worked out by a special Committee as to the exact manner of conducting a campaign of opposition to this plan. Naturally this must consist mainly of an educational campaign for the laity, aided by the doctors assuming the right of every citizen of the United States and taking and showing an interest in politics of the country. With all the members of Congress looking after their fences and preparing for election either this year or two years from now, the time is ripe and the opportunity is present for the medical profession to contact their representatives in Congress personally and tell them in no uncertain terms exactly what they as citizens think of the plan and try to get the Senator or Representative to tell how he stands on the question. This latter is as we all know a difficult thing to accomplish. But surely, we can draw some very definite conclusions as to their stand in the matter and if they are not promising definitely to opposition to any attempts to socialize the practice of medicine, it is our privilege to oppose their reelection, regardless of their alleged political faith. To the medical profession this is not a question of partisan politics, but rather a deeper one striking at the very roots of free government. It makes little difference to the medical profession whether our representatives in Congress are Republican or Democratic, provided they are in opposition to such a plan to socialize the practice of medicine, regardless of how vague and innocuous it may seem when explained by the glib tongue of a professional politician.

The medical profession is receiving great help from non-medical sources and it is but fair that due credit be given where it is due. On August 26, 1937, in the column syndicated by David Lawrence in the *New York Sun,* Mr. Lawrence published one of the finest articles as yet written on this subject. This article will be published in this issue of the JOURNAL either in this column or nearby. All of you please read it and learn what is going on at Washington. There has been no refutation of any of the statements made in his article. Also there will be in this column an article from the *Chicago Journal of Commerce* as of September 4, 1937. The facts stated therein should make every member of the medical profession positive that there is a definite plan at Washington to socialize the practice of medicine. Remember these are not from the pen of medical men, who may be accused of bias and selfishness, but from the pen of the leading writers and commentators of our times, men who do not dare to make false statements, and who know what they are writing about before they start. When they can tell you what is coming in the next few years unless something definite is done at Washington, it is time that the medical profession stop questioning the truth of the few who have dared to make dire forecasts as to the future of the medical profession and join in the fight to preserve the present method of conducting the practice of medicine.

Ever since the little magazine, *Medical Economics,* has been published it has failed to receive the approval of organized medicine. The reason

for this failure is unimportant for what we wish to say here. It enjoys a large circulation and is read by the rank and file of the profession in part or in whole as time permits and as it pleases the reader. The important thing is that it has taken a definite stand in opposition to Socialization of the Practice of Medicine and is opposing it in every way possible for it to do so. The editorial in the September issue probably seems radical to some, but to many it seems appropriate. At any rate the writer is to be congratulated in having some definite plan to oppose said socialization. The American Medical Association will be obliged to lead this fight against such legislation as that proposed by Senator Lewis and the sooner they get started the better. They must make the plans of opposition and when relayed to the individuals, they will be carried out. We must not lose valuable time due to disagreement as to who should assume responsibilities.

Among the questions discussed at the last meeting of the Committee on Medical Economics was contract practice as carried on by the different lodges, such as the Eagles and the Moose. A definite conclusion was arrived at and the following day this was concurred in by the Council. A report of this action should be included in this issue of the Journal and should be read by every man in active practice, for in every community some man or men are connected with lodge practice and will be affected by this decision. Also a recommendation was made as to the manner in which premarital examinations should be made and charges for the service rendered handled. This should also be reported in the current issue of the JOURNAL.

A report on the medical service as rendered the wards of the state in State Institutions is in the process of compilation. When this is completed it will be brought to the attention of the proper supervising officers of this department as well as the Governor and it is to be hoped that there will result some changes in the manner in which this service is carried out, since some changes are to be suggested. It is possible that there will be a definite report ready by next month.

The Committee on Syphilis, under Dr. I. H. Neece as Chairman, is working on the problems arising as a result of the greatly increased amount of work required of them since the Premarital Law went into effect and we hope to have a report from them in the next issue.

We fear that there will be so much in this issue of the JOURNAL on economic subjects that it may seem a little topheavy. This is a crucial time for the medical profession and we hope all will read all that is available.

E. S. HAMILTON,
Chairman of Committee.

The following article is copied from CHICAGO JOURNAL OF COMMERCE as of Saturday, September 4, 1937.

HEALTH RISK BILL FAVORED BY NEW DEAL

HOLDS HIGH PLACE ON ADMINISTRATION'S LEGISLATIVE CALENDAR

Washington, Sept. 3.—A health insurance system, rounding out the social securities program which embraces at present only unemployment and old age insurance, holds a high place on the administration's calendar of legislation "futures," it was reported today.

The present plan is to have the health insurance bill introduced by Senator Robert F. Wagner, sponsor of the social security act which setup the unemployment and old age insurance systems. Whether the bill will be offered at the next session or at a latter session has not been decided. The administration, it is said, is not prepared to undertake new financial commitments on a large scale until the budget picture is more favorable but advocates of the measure favor early introduction of the measure as they anticipate that it will stir up such bitter controversy that it might take two or three years to get the bill enacted.

HEALTH INSURANCE VITAL

Senator Wagner believes that health insurance is an integral part of a social security program. He has been studying health insurance plans in force in other countries and has conferred with some government agencies concerned with social welfare. The contemplated plan calls for the appropriation of federal funds to provide free medical and hospital care, but just how this would be provided and what groups of the population would be benefited are details which have not been worked out.

For several months the social security board has been studying some phases of health insurance, but an official of the board said it was not likely that any recommendations to congress at the next session would be made. The view of the board is that until the unemployment and old age insurance systems are completely worked out a study of health insurance must take a secondary place in its activities.

Nevertheless some phases of the question are being studied by a staff working under Ewan Clague, director of the research and statistical division of the board. The study is being made under authority of section 702 of the social security act which authorizes the board to make researches for the information of congress.

Should Senator Wagner introduce a bill next session, it is not likely that the White House would press for

passage until the government's fiscal problem has eased considerably.

5% Wage Tax Needed

Estimates of the cost of a comprehensive health insurance program indicate that a tax equivalent to 5 per cent of payrolls would be necessary to support it. The President's committee on economic security in January, 1935, prepared a tentative plan, but recommended further studies. It found that the cost of wage-loss payments would be 1 to 1¼ per cent of payrolls and also that families with incomes up to $3,000 were spending 4½ per cent of income for medical care.

All the work preliminary to the actual introduction of a health insurance bill is being done quietly and every effort is being made to avoid publicity. The reason for the secrecy is that the administration does not wish to stir up opposition from many groups which regard the plan with hostility. The White House was dismayed when Senator J. Hamilton Lewis of Illinois told a meeting of the American Medical Association at Atlantic City earlier this year that he had been authorized by President Roosevelt to tell the medical profession to reconcile itself to being drafted by the federal government for a federal health insurance plan. He held out the likelihood that all physicians would be federally licensed. The White House did not repudiate Senator Lewis' speech.

TODAY IN WASHINGTON

New Deal Passes from Law and Economics to Tamper with Nation's Health

By David Lawrence

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Washington, Aug. 26.—Physicians throughout the United States will be interested to learn of the New Deal's latest experiment, which may prove the entering wedge for "socialized medicine" in America, sometimes called the placing of medical care on a "quantity production" basis.

Like all New Deal "experiments," the plan to provide medical care by the group method is limited in scope at first. It is to apply for the present to the employees here of the Home Owners Loan Corporation and the Federal Home Loan Bank Board, but it is so set up that it can just as readily be extended to all the 117,000 Federal employees here and the 700,000 or more Government employees throughout the country.

Doctors have long suspected that the New Deal would seek to introduce "socialized medicine," but assurances to the contrary have come as usual from time to time from high quarters. The importance of the new experiment will be minimized in official quarters so as to discourage opposition and the plan will be compared to various group health plans in private industry. But the new organization, nevertheless is directly in line with what has been urged by persons inside the administration who see the job possibilities and patronage potentialities of a medical bureaucracy in the Government. The latest step, therefore, may be taken to mean that the campaign for "socialized medicine" has begun.

The objections to this form of medical care are numerous and the best testimony is that which comes from experts who have studied the health insurance system abroad.

Thus, Sir E. Farquhar Buzzard, president of the British Medical Association, said recently in a public address.

"The chief flaw in a badly organized service, such as that which has evolved in this country during the last century, is lack of time, and both the general practitioner and the consultant, in order to earn a living wage, are frequently obliged to undertake far more work than they can deal with efficiently in the hours at their disposal."

Regarding Germany, Dr. Paul G. Frank, another authority, says: "For almost thirty years I have worked as a German panel doctor under the conditions of compulsory health insurance, and for many years I was a member of the physicians committee. During this period I witnessed a deterioration of the medical profession. It came about by the removal of the sanctions of preferment by skill and the substitution of preferment to convenience."

The same line of reasoning is expressed by Dr. William J. Mayo of the Mayo Brothers Clinic in Minnesota, who wrote recently:

"We of the medical profession are determined that we will not be subjected to political interference. We will not sacrifice the spiritual values of our profession for the small material gain held out to us by political and social experimenters who are attempting now to control the practice of medicine. We refuse to be dictated to by men who are not physicians, who do not understand the sacred obligation of physicians and their patients."

The way "socialized medicine" would develop would be to discourage younger men from going into the medical profession and take away from those who have built up a practice many of the patients who ordinarily come to them.

It is true a large number of doctors would have to be employed by the Government in any national scheme of "socialized medicine," but the selection of these doctors by a political spoils system would only be a worse step than the application for Government jobs of doctors not good enough to build for themselves a firm reputation and adequate practice in their own communities. If, for instance, all Government employees in Washington were to be cared for medically under some sort of group plan run by the Government, why should any good doctors stay here? Why should any new ones come here from the best medical schools to replace those who are retiring? Immediately there would be a destruction of incentive and a breakdown in the quality of medical care available to the people of this whole community.

The new plan to be put into effect next month by "The Group Health Association" among the Home Loan Corporation employees calls for payments of $3.30 a month for men with families and $2.20 a month for single persons.

"The service," it is promised by one of the officials in charge, "will include medical and surgical examina-

tions, including examination in special departments, such as eye examinations, laboratory tests and X-ray examinations. In each case, complete medical and surgical care will be given.

"Hospitalization is to be given in a semi-private room for a period of three weeks during a single illness, without additional charge."

The staff of the new clinic is to be headed by Dr. Henry R. Brown of the tuberculosis division of the Veterans Administration and it is planned to hire a staff of about six or seven physicians.

The charter of the new organization is not restricted to the employees of the Federal Home Loan Bank Board and Home Owners Loan Corporation who are to participate in the group health scheme, but, if successful, the project can be extended to all Government employees inside and outside of the national capital. The dues do not include cost of medicines, drugs and surgical appliances nor the expense of dental work, oxygen tanks, radium and deep X-ray treatments, blood transfusions or special nursing service. It is not planned to treat certain types of surgical or nervous disorder cases or to furnish treatment after the medical director recommends confinement in an institution in mental, tubercular, drug or alcohol addiction cases.

The whole experiment, however, beginning now on a small scale, dovetails with reports current last November that the Social Security Board was studying the possibility of adding a national health insurance project as a part of its program. Comprehensive health insurance, of course, would be borne by the taxpayers and it is estimated as likely to cost 5 percent of payrolls. The Social Security Board has authority to make research studies on "related subjects" and health insurance is held to be one of these.

The New Dealers are seeking to pattern their plans on projects in foreign countries, but prominent American physicians, like Dr. Floyd S. Winslow, president of the Medical Society of the State of New York, says of the experiences of the Europeans:

"Many physicians are required to see forty to sixty patients a day—some average 100. This is far too many. Why do not British doctors complain? It should be remembered that health insurance has existed as part of the Government in England since 1911. British physicians who see its great defects are 'cagey' in their public statements derogatory of a system in which so many physicians and bureaucrats are dependent."

Dr. Winslow also quotes Dr. Jacob L. Moreno, who is an authority on the Austrian experience, as saying:

"No physician is capable of properly treating the large number of patients sent him under sickness insurance. He is forced to evolve some mass production plan of operating his office to run people through his mill as fast as possible. The 'rush' system of handling patients is inevitable. When the technic of getting them in and out fast is perfected, the doctor begins to lose that intangible something which is vital to both himself and his patients—his morale. I do not know any doctor who remained long at this sort of practice in Austria who did not become hardened."

The New Deal has not hesitated to tamper with the economic system, to tamper with the judicial system, and now is reaching out to tamper with the health system of the country. Inasmuch as the Roosevelt administration has encouraged a group of office-holding lawyers to seek to undermine the American Bar Association, it would not be surprising, therefore, if the administration, in order to make some sort of showing of approval by members of the medical profession, encouraged the formation of a rival to the American Medical Association to be made up either of doctors ambitious for jobs, or doctors who haven't made good in their communities, who do not have the gumption or initiative to undertake the hazards of private practice, and who prefer instead the "security" of politically made and bureaucratic jobs. America's death rate, if the Southern States where large Negro populations live are eliminated, will be found to be lower than that of any of the countries where Government insurance schemes prevail. Likewise four of the leading countries which have the lowest death rates do not have compulsory health insurance. They are Australia, Union of South Africa, New Zealand and Canada. In South America, Chile, which has compulsory health insurance, has a death rate of 26 per thousand inhabitants every year, while Argentine has 11 per thousand and Uruguay 10 per thousand, and neither of these last two countries has a Government insurance system.

Reprinted from David Lawrence's Syndicated column in the New York Sun, August 26, 1937, *for the Public Relations Bureau, Medical Society of the State of New York,* 2 *East* 103d *Street, New York, N. Y.*

Correspondence

A POSITIVE SOLUTION OF THE SEX PROBLEM

Savannah, Illinois,
September 10, 1937.

To the Editor:

Enclosed is a copy of a letter to the President which I will appreciate if you will publish. I believe it is worth while.

N. Genevieve Chipman, M. D.
Savannah, Illinois,
September 9, 1937.

Hon. Franklin D. Roosevelt,
President, United States of America,
Washington, D. C.
Honorable President:

The daily headlines in our newspapers of "murder," rape and sex crime against women and small children is appalling in *"these days of supposed civilization"* and to think, the one step, to suppress this crime, has not as yet been taken.

It seems unbelievable the solution is still in

abeyance when it is so simple, so perfect, with so little cost or injury to the individuals.

In order to recover from a disease, we must first ascertain the cause, remove it, and in this case we know the cause and removal of the cause will bring about complete recovery.

This I believe is good reasoning, for why preserve an organ in the body when that offending organ is making a desperate criminal of the individual? Better by far remove or treat the organ and make a good citizen in preference to a life of incarceration in a public institution for tax payers to maintain.

I suggest a "National law" making it compulsory in every state in the Union in which the law is not already in force, and that law is, "sterilization" of the criminally insane and mental defectives, criminals and particularly "murderers," and sex criminals, for sex criminals are insane along one line only and that is sex gratification.

Illinois has recently inaugurated a state wide campaign to eliminate syphilis and gonorrhea, also a law compelling young people anticipating marriage to obtain a certificate of health. These are both wonderful laws and the state needs to be congratulated, but Illinois needs one more law equally as magnanimous and would place this state among the first of the nation in eliminating the cause of murder, rape and sex crime against women and small children. This law is sterilization of all morons, sex criminals, "murderers," mental defectives and insane, and any others dangerous to society. This law would also in time eliminate the tremendous cost to tax payers for maintenance of institutions of public welfare to house these individuals. The law should also include subnormal individuals "who never work" but "multiply" and for generations are parasites on a community for their welfare. These individuals in each community should be sought and a process of sterilization begun, to improve the next generation, for, "believe it or not," these same people are the *"progenitors"* of our *"next race"* of people.

Can the nation or state overlook this stupendous task and still let the curse proceed without intervention? You all well know how "docile" the *"night howling* tom cat" becomes after sterilization; try it on morons and sex criminals and see what good citizens can be made, in preference to a life of incarceration in a public institution and expense to already "overburdened tax payers."

And before closing may I suggest another solution that will relieve the sex problem, and that is a dress reform that will cover the bodies of men, women and children, and be an example for the next generation to practice modesty, morals and decency.

"The lust of the flesh" is ever present in a nude, or practically nude body. Keep it covered and we will have less "sex appeal" and "abuse"; "more brains" with higher standards.

May I suggest a bill for "National Sterilization" of criminals, particularly murderers and sex criminals, mental defectives and those who for generations have been parasites on communities, be inaugurated and placed before the next session of the Congress.

321 Main St.

N. Genevieve Chipman, M. D.

QUESTIONS THE LEGALITY OF THE VERTICAL HOSPITAL STRIKE CHICAGO HOSPITAL COUNCIL

Chicago, Sept. 22, 1937.

To the Editor: We are attaching herewith a copy of a letter sent to the Honorable Barnet Hodes, Corporation Counsel, regarding the legality of the vertical hospital strike in this community.

We believe the issue presented therein would be of sufficient importance to the medical profession to warrant the publication of this attached letter in your JOURNAL.

Arnold F. Emch, Executive Director.

The letter to Mr. Hodes follows:

CHICAGO HOSPITAL COUNCIL
105 West Adams Street
Franklin 9292
September 18, 1937.

The following self-explanatory letter was sent to the Hon. Barnet Hodes, Corporation Counsel, today. We believe it will warrant your careful consideration.

"Hon. Barnet Hodes,
Corporation Counsel,
Room 511, City Hall,
Chicago, Illinois.

Dear Mr. Hodes:

Inasmuch as the United Hospital Workers of Chicago (a C. I. O. affiliate) has announced

at one of its recent public meetings that the offices of the Mayor and the Health Commissioner had assured its representatives that hospital employees had a right to strike, we were obligated to communicate with Mayor Edward J. Kelly and Dr. Herman N. Bundesen to determine whether this announcement had any basis in fact. We are pleased to say that both the Mayor and the Health Commissioner have since informed us that they did not at any time advise the representatives of this Union that they did, or did not, have a right to strike (since this is a matter upon which the Corporation Counsel must decide).

It is for this reason that we are now communicating with you in the hope that we may receive your counsel and advice regarding the legal status of a vertical hospital strike in this community.

We do not ask that the city take any official stand toward or work out the strictly employer-employee problem of wages, hours and working conditions in hospitals, but we do believe that the possibility of vertical strikes in voluntary, not-for-profit hospitals, involving the non-professional employees in hospitals, should be a matter of concern to the Mayor, the Health Commissioner and the Corporation Counsel.

We believe that the legality of such vertical strikes should be investigated by your office, since the dangers to the community involved in such a strike would be even more serious than those involved in a strike of the police or fire departments of this city.

Since the operation of a hospital in the community affects the public welfare, lives, well-being and health of the people, we believe that such an institution should not have its proper function interfered with by strikes—since chaos would result and the public health and welfare would be materially affected. Uninterrupted hospital services for the people of this city is so vital for the preservation of the general health of the community, especially the children, the sick, and the infirm, that any organized effort to interfere therewith should be regarded, we believe, as an act of hostility to the common good.

Whatever may be the right or the wrong of the present wage and hour controversy, the health of the community must not be made subservient thereto. Acts which would not be unlawful under ordinary conditions become unlawful, we believe, when linked with a purpose inimical to the welfare of the community.

Hospitals are making a valiant effort to adjust hours and wages so that no hospital employee is underpaid or overworked. This must, however, be accomplished if possible without increasing the cost of hospital services to the public.

For your information, record and convenience, we are enclosing a copy of a recent confidential survey completed by this office, and we sincerely hope that you will be able to advise us at a very early date what, in your expert and professional opinion, is the legal status of a vertical hospital strike in this community.

Arnold F. Emch, Eexecutive Director."

REGULATIONS RELATIVE TO RELEASE OF CASES OF TYPHOID FEVER THAT HAVE BEEN HOSPITALIZED

It has come to our attention rather frequently in the past few weeks that there seems to be a lack of familiarity of physicians and hospitals in regard to the release of cases of typhoid and paratyphoid fever that have been hospitalized, with the result that in many cases the burden of unnecessary expense is placed upon the patient or the family of the patient.

Any case of typhoid or paratyphoid that has been hospitalized, and in the opinion of the attending physician is convalescing, and if in the opinion of the physician, the physical status of the patient will permit his removal to his home, such cases may be removed to the home pending the period in which release specimens are to be secured. Before the case is removed to the home, however, the hospital should notify and obtain permission of the local health officer of the community in which the case is hospitalized and also the health officer of the community to which the case is to be removed. Also this Department should be informed that such removal is planned, the date that the removal will take place and the patient's address.

Cases should not be removed to the home unless the inmates of the residence have been inoculated with the customary three doses of typhoid vaccine. If a food handler exists in the family and the case is removed to the home, the food handler will be required to live elsewhere and take his meals elsewhere until final release of the case is obtained, otherwise he will be quar-

antined on the premises until the quarantine of the case is terminated.

When a case of typhoid or paratyphoid fever is removed from a hospital to the home for final release, the residence should be placarded with the customary typhoid fever sign and such sign shall remain until two specimens of feces and urine taken one week apart, the first not sooner than ten days after the case is afebrile, prove to be negative for the typhoid bacillus.

Yours very truly,
Frank J. Jirka, M. D.,
Director of Public ealth.

EDUCATIONAL COMMITTEE

A Change in Outlook

DO YOU KNOW—

That the ancient Greeks whose love of beauty became almost a religion regarded the cripple with disgust and aversion? The ancient Egyptians were cruel with regard to the cripple, even purposely deforming children to sell as slaves. Among the Romans the practice of destroying deformed infants was common until the Emperor Valentinian forbade it by law in 374 A. D. Even among the Jews who took a forward step in humanity, the cripple was barred from the priesthood, by the law of Moses, "One who is crooked footed, or crook backed or broken handed can not serve as a priest." In the middle ages the cripple was either despised or feared. Shakespeare indicated the feeling by usually having the villian a deformed person.

DO YOU KNOW—

That now the crippled child is the object of special attention? Expert surgical and medical care are available for him. Special schools are established where the crippled children receive their instruction as well as necessary corrective treatment at the same time. This change certainly marks an advance in general humanity. Our modern civilization may not be perfect but its treatment of the crippled looms large on the credit side.

DO YOU KNOW—

That 80% of crippling occurs before the child is even ready for school and much can be done for this youngest group? Some of the most valuable procedures in relieving the crippled much be postponed to later ages but the time spent in waiting need need not be wasted if the cases are seen early. Infantile paralysis stands out as the chief producer of crippling. Medical scientists are working on preventives of this disease and it may not be many years before some other glorious achievement will stand with the well established preventives of diphtheria and smallpox. The story of the crippled child is by no means finished. Much is to be done. Cripples have made valuable contributions to the world of Arts, Letters and Science—Sir Walter Scott, Lord Byron and Steinmetz.

This is the type of article going weekly to 85 newspapers. 334 organizations such as libraries, and individuals.

The Second Annual Meeting of The Illinois State Society of X-Ray Technicians will be held in Bloomington, Illinois, on Oct. 23, 1937, at Hotel Illinois. Morning and afternoon sessions. Banquet dinner and entertainment in the evening.

Edith B. Dawdy, R. T., President.
Esther C. Perry, R. T., General Chairman.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

A Message from the President

MRS. HERBERT B. HENKEL

A new year dawns in the activities of the Woman's Auxiliary to the Illinois State Medical Society, a year which we fondly hope may be rich in service and worthy of recollection in the annals of the organization.

At the outset, may I extend hearty greetings to all officers, and members of the Auxiliary, as well as to all Doctors' wives and others in any way affiliated with the medical profession of the State.

The most cursory consideration of the Auxiliary's work in this State reveals many and varied opportunities for service. And as we look back upon the record of previous years, it gives us a feeling of pride and satisfaction that so much worth while has been accomplished, so much of progress has been achieved, and it inspires us to even greater effort in our program of work.

In every such program the legislative phase deserves an important place. It so happens that this is one of the "off years" in the legislative sessions, but that gives us the advantage of more time than usual to acquaint ourselves with all bills pending which concern the welfare of the profession, and be ready to go into action when they come up again. "State Medicine," for example, is an issue which requires our most thorough study if our interests are to be protected as they should be.

On this subject, in particular, it is vitally important that we secure speakers who are informed as well as eloquent, who are available at all times to present our cause to the laity. Every Augiliary member and every Doctor's wife should realize the importance of this issue. Now is the time when we can be of real service and we must not shirk the opportunity.

Another highly significant opportunity for our service as an organization is the imparting of the profession's ideals and aspirations to the laity of our sex. Laity Day programs enable us to do this very effectively, but it should be borne in mind that an isolated program of this type, here and there, falls short of the required results. There should be at least three or more of these programs.

It is my suggestion that every Auxiliary arrange for a series of such events, for experience has shown that the public is interested in them and in many instances has asked for more.

And while on the subject of programs, I might add that they should be kept interesting and informative,

and never dry and abstruse. The social phase should be judiciously combined with the programs themselves, for we must not neglect those features of hospitality and acquaintanceship which means so much to any organization like ours. Then, too, let's not forget to arrange occasional get-togethers with our husbands in the profession, and spread the gospel of good fellowship in that field as well.

The general program committee has worked out some splendid suggestions for these programs. Those outlines are for your benefit and will be found extremely helpful in arranging the work of the year. You are not expected to follow them to the letter, but many times they will save you time and thought in emergencies. You will also find references to *Hygeia* throughout the suggestions, and its frequent use is recommended because of the very interesting and constructive material it contains along these lines.

It is appropriate at this time, as we approach the work of the new year, to stress the importance of every Auxiliary chairman enlisting the aid and co-operation of, and working with, the State Chairman, upon whose shoulders rests a heavy burden of responsibility which is often not fully appreciated.

We should early learn to cultivate them and to seek out the many and worthwhile ideas they have to offer. And on the other hand we should be generous in our contributions to the good cause. Every Auxiliary can suggest something for the good of the order which will make it bigger and better in all its essential undertakings. It is, if you please, a game of "Give and Take," in which all should join in the common bonds of service and good fellowship.

In conclusion, may I wish every Auxiliary a happy and prosperous year. It is my sincere hope that you may accomplish all that you have set out to do, and my constant wish that we all may "Become more Auxiliary minded."

Mrs. Herbert B. Henkel,
President.

COUNTY NEWS ITEMS

St. Clair: Mrs. C. C. Winning, past president of St. Clair county, and State Program Chairman with her committee consisting of: Mrs. Lucius Cole, River Fort, Ill.; Mrs. H. H. Hurd, East St. Louis, Ill.; Mrs. Herbert Henkel, Springfield, have prepared an interesting and enjoyable program for the coming year. Mrs. R. F. Stanton is the able and capable president this group chose for a leader.

Bureau: Mrs. R. E. Davies, Retiring President; Mrs. M. A. Nix, 1937-38 President.

Coles-Cumberland: Mrs. Harned, President.

Cook: Mrs. H. J. Dooley, president. Cook County is planning the best year ever in membership and constructive work activities.

Douglas: Mrs. F. C. Phillips, President.

Kane: Mrs. E. M. Thomas, Past President; Mrs. C. A. Potter, 1937-38 President.

Knox: Mrs. Chas. A. Ross, President.

Livingston: Mrs. J. G. Young, President.

Sangamon: Mrs. S. R. Magill, President.

Vermilion: Mrs. A. O. Sistler, Past President; Mrs. I. J. Scott, 1937-38 President.

Three new groups were organized the past year:

Adams—Mrs. Walter Stevenson, Quincy, President.

La Salle—Mrs. A. I. Raminossky, President.

Montgomery—Mrs. E. T. Douglas, Hillsboro, President.

Illinois was well represented this year at the National Convention. The following Illinois State members have places on the National Board:

Mrs. Lucius Cole, Second Vice-President.

Mrs. J. P. Simonds, Editor-in-Chief of the News Letter for the Woman's Auxiliary to the American Medical Association.

Mrs. Rollo K. Packard, Director.

The State Convention, held in Peoria late in May, was the largest ever held. There were twelve hundred Doctors and three hundred Auxiliary members and guests present. An enjoyable time was had by all and Mrs. Milo Eastman, Convention Chairman, is to be congratulated again even at this late date.

Louise W. Smith (Mrs. C. Otis)
Chairman Press and Publicity.

MAYO FOUNDATION FALL CLINIC

A special program of lectures and demonstrations in surgery and medicine will be held under the direction of the Mayo Foundation from November 8 to 12, inclusive. Mornings will be devoted to surgical and medical clinics. In the afternoons and evenings, in addition to a clinico-pathologic conference, symposiums will be conducted on gastro-enterology, allergy, diseases of the chest and cardio-vascular diseases. Visiting physicians are invited to attend.

POLIOMYELITIS AND OTHER DISEASE PREVALENCE

Illinois Health Messenger, September 15, 1937, states that:

Infantile paralysis is more prevalent than at any previous time so far as revealed by official records. Up through September ninth, 411 cases had been reported this year against 161 in the corresponding period of 1936, an epidemic year that brought 682, the third highest on record. So far the prevalence trend this year has conformed exactly with previous behavior, beginning to rise noticeably late in July and climbing rapidly since the first of August. This behavior suggests that a high prevalence level will continue for two or three weeks since the peak of epidemic waves in the past has occurred late in September or in October.

Even under epidemic conditions as now prevail, however, the risk of illness to any particular child is not great compared with the danger of illness from diphtheria, scarlet fever or pneumonia or injury from accidents.

Presuming that 1,200 cases of poliomyelitis will have occurred by the end of the year, it will have affected about 1 in each 1,600 children under fifteen years of age. Last year about 1 in each 1,000 children of the same age group suffered from diphtheria and scarlet fever attacked about 1 in each 100. The accident rate is unknown but accidental mortality indicates a relatively high incidence.

This is not said to minimize in any sense the serious-

ness of poliomyelitis or the importance of utilizing every possible means of controlling the disease. From one-half to three-fourths of the patients who suffer acute illness from poliomyelitis are left physically handicapped in varying degree. This result is more characteristic of infantile paralysis than of any other common communicable disease.

Since there is available no specific method of prevention that can be applied practically on a large scale, treatment of patients so as to prevent paralysis if possible and to cause the best recovery of those paralyzed assumes dominant importance. Convalescents' serum is recommended for treatment of patients prior to the onset of paralysis and even in the early stages after paralytic symptoms appear. Experience last year in Illinois indicates that convalescents' serum is effective in preventing paralysis.

Good orthopedic care is of paramount importance from the very moment after the onset of paralysis. Recovery is slow in most cases, requiring regular treatment over a long period, two or three years. Ultimate results under competent medical advice, however, make the expense and effort in treatment of inestimable value to the patient.

Convalescents' serum is distributed free by the State Department of Public Health and may be had promptly through the district health superintendents located at various points throughout the State or from the laboratory at Springfield. Medical consulation service is available from the State Department of Public Health and from the division for handicapped children of the State Department of Public Welfare.

Although concentrated principally in Chicago, prevalence of infantile paralysis has been and is general throughout Illinois as well as in several neighboring States. Of the 411 cases reported up to September ninth, 210 were in Chicago.

EXAMINATIONS AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next examinations (written and review of case histories) for Group B candidates will be held in various cities of the United States and Canada on Saturday, November 6, 1937, and Saturday, February 6, 1938. Application for admission to these examinations must be filed on an official application form in the office of the Secretary at least sixty days prior to these dates.

The general oral, clinical and pathological examinations for all candidates (Groups A and B) will be conducted by the entire Board, meeting in San Francisco, California, on June 13 and 14, 1938, immediately prior to the meeting of the American Medical Association.

Application for admission to Group A examinations must be on file in the Secretary's Office before April 1, 1938.

For further information and application blanks address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6) Pa.

ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES

The Pacific Fleet will be in the port of Los Angeles during the Convention of the Association of Military Surgeons on October 14-16, 1937, at the Ambassador Hotel. An unusually interesting program has been prepared and the Scientific and Technical Exhibits will be the largest in the history of the organization. Physicians, Surgeons, Dentists and Veterinarians of the Army, Navy, Marine Corps, C. C. C. Camps and the Veterans Administration will be present. For additional information write to Robert L. Lewin, Ambassador Hotel, Los Angeles, California.

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

The first West Coast meeting of the American Academy of Orthopaedic Surgeons will be held on January 16-20, 1938, at the Hotel Biltmore, Los Angeles. Special trains will be run with stop-overs at Santa Fe, the Grand Canyon, San Francisco and other points. For further information write to Robert L. Lewin, Hotel Biltmore, Los Angeles, California.

CHICAGO UROLOGICAL SOCIETY

The regular meeting of the Chicago Urological Society will be held on Thursday, October 21, 1937, at the Palmer House, 8 P. M.

The Ninth Annual William T. Belfield Lecture will be delivered by Dr. D. K. Rose, St. Louis, Mo. His subject will be "Neurologic Anatomy and Physiology of the Bladder and its Clinical Application in Urology."

Preceding the meeting there will be a dinner at 6:30 P. M. to honor Dr. Rose.

William J. Baker,
Secretary

REMOVING ADHESIVE PLASTER

For the painless and most satisfactory removal of adhesive plaster, it should be thoroughly moistened with "KARITH CLEANING FLUID." Karith Cleaning Fluid is quick and effective. It does not contain carbon tetrachloride. Its use is not acompanied by the odor or unpleasantness and danger common to carbon tetrachloride type products.

Karith Cleaning Fluid is manufactured by Karith Chemical Company of Chicago, Illinois, and is carried by drug stores.—J. W. W., Ill. Med. Jour., Nov., 1936.

Menorrhagia due to excess of estrin in the blood may be treated with thyroid extract. If there is also pain, Antuitrin-S given just before the menses may be of striking benefit. Evan. Shute, *Canad. M. A. J.* 35:622 (Dec.) 1936.

Peritoneal immunization favorably influences mortality and morbidity of post-operative peritonitis. Bargen's vaccine is one of the most effective and suitable activating agents. Herbert Lester Johnson, *Am. J. Surg.* 34:266 (Nov.) 1936.

Original Articles

MODERN PROBLEMS IN THE CONTROL OF STREPTOCOCCIC DISEASES

John Hays Bailey, Ph. D.
CHICAGO

The streptococcic diseases, scarlet fever, erysipelas, puerperal sepsis and hemolytic streptococcic sore throat, present the most complex and perplexing problems in public health today. While diphtheria and typhoid fever have been controlled to all but the vanishing point and well proven means to accomplish this are at hand, the streptococcic diseases continue to kill and handicap the population as they did twenty years ago. There is evidence that scarlet fever, at least, is increasing in prevalence, although the mortality rate has remained practically constant. The average mortality from scarlet fever in Illinois for the years 1928 to 1935, inclusive, was 3.8. During the triennium 1933-35, however, the average annual rate rose to 4.2 per 100,000. Average mortality rates for certain of the contagious diseases for the same years are shown in Figure 1. The scarlet fever mortality rate leads all others, being 1.7 times higher than whooping cough or measles, and just twice that of diphtheria. It is ten and one-half times greater than that of poliomyelitis.

If we consider the reported incidence of scarlet fever for the same period (1933-35) we find an average yearly incidence of 26,267 reported cases or approximately 300 cases per 100,000 population. During this period the incidence of reported cases rose from 16,000 in 1933 to over twice that number in 1935. These data show the magnitude of the problem.

Stallybrass has said that epidemiology is a study of the seed, the sower, and the soil. In the case of the streptococcic diseases the soil is the entire population. In infancy and old age the seed produces erysipelas; in early childhood and adult life it blossoms as scarlet fever, sore throats and puerperal sepsis. This is shown in part in Figures 2 and 3. Thus this seed produces a harvest from all soil in which it may be sown.

It is about the seed that much scientific discussion has centered—and many of the difficulties in control are direct offshoots of these discussions. The concept that each disease is caused by a particular and distinctive hemolytic streptococcus had its origin in the discovery of the hemolytic streptococcus in a variety of conditions, each organism being named for the disease from which it was isolated. The hypothesis

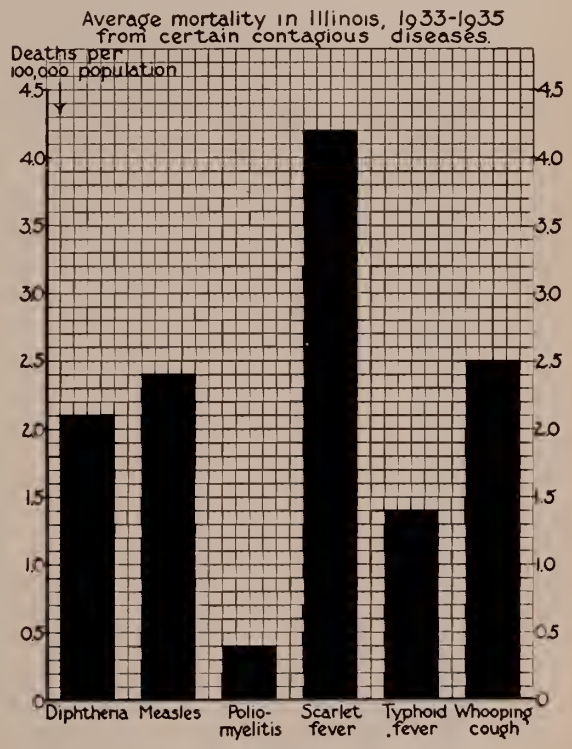


Figure 1.

that specific streptococci caused specific diseases continued unchallenged until the work of Dick and Dick and Dochez. Since then, evidence is gradually accumulating that there is a lack of specificity in the hemolytic streptococci and any one may cause a variety of conditions. In 5% of some 200 scarlet fever cases, the causative organism was found to be a hemolytic streptococcus frequently causing erysipelas. This same type of organism was originally isolated from a case of puerperal sepsis. Certain hemolytic streptococci are frequently encountered in scarlet fever and certain others in erysipelas, but the former may cause erysipelas just as the latter may cause scarlet fever.

The Chicago Branch Laboratory, Illinois Department of Public Health and the Department of Bacteriology and Public Health, University of Illinois College of Medicine.

Read before Section on Public Health and Hygiene, Illinois State Medical Society at Peoria, May 19, 1937.

From the bacteriological data presented, it is apparent that any one of a number of streptococcic diseases may be transmitted by a single individual who harbors hemolytic streptococci. Thus a case of scarlet fever may give rise to erysipelas in one individual, sore throat in another, and puerperal sepsis is still another.

Control of the case by quarantine and isolation has been the method of control of the streptococcic diseases. From the figures already given it is apparent that control of the case by this method has failed to prevent the spread of scarlet fever. The data on the other streptococcic diseases are incomplete.

Any quarantine exerts a considerable hardship upon the household, both economically and in restriction of personal rights. If the case be not acutely ill during most of the quarantine period, a feeling of disrespect for the restrictions, a sense of futility, is engendered. This is more pronounced in long quarantine periods. Recognition of these facts and the low fatality in present-day scarlet fever led to agitation for reduction in the quarantine period. In 1932 the Illinois Department of Public Health, with several other states, reduced the quarantine time for scarlet fever from four to three weeks. Some of the results of this move have been mentioned above. This is shown graphically in Figure 4. One of the claims advanced for the shortening of quarantine was a reduction in economic loss through time spent in quarantine. Arbitrary shortening of the quarantine period, however, does not necessarily result in an economic saving. During the triennium 1930-1932, under a four-week quarantine rule, 1,350,000 days were lost by cases alone. During 1933-35, when the three-week quarantine was in effect, the time lost by cases alone amounted to 1,500,000 days. This is an increase of 11% in the time lost. (Figure 5.)



Figure 2.

A partial explanation for this increase is not difficult to find and is dependent upon the length of time scarlet fever patients harbor hemolytic streptococci. One thousand scarlet fever patients were examined culturally at the end of their three-week quarantine. Of this number

87% harbored hemolytic streptococci. A similar study by Hoyne[1] showed that only 60% of the patients were vectors of hemolytic streptococci at the end of the four-week quarantine. If these figures hold for the state at large, during the triennium 1930-32, when there was a four-week quarantine, an average of 9,800 foci of infection per year were returned to the population. In the next three years, 1933-35, a yearly average of 22,000 foci of infection were sown among the population.

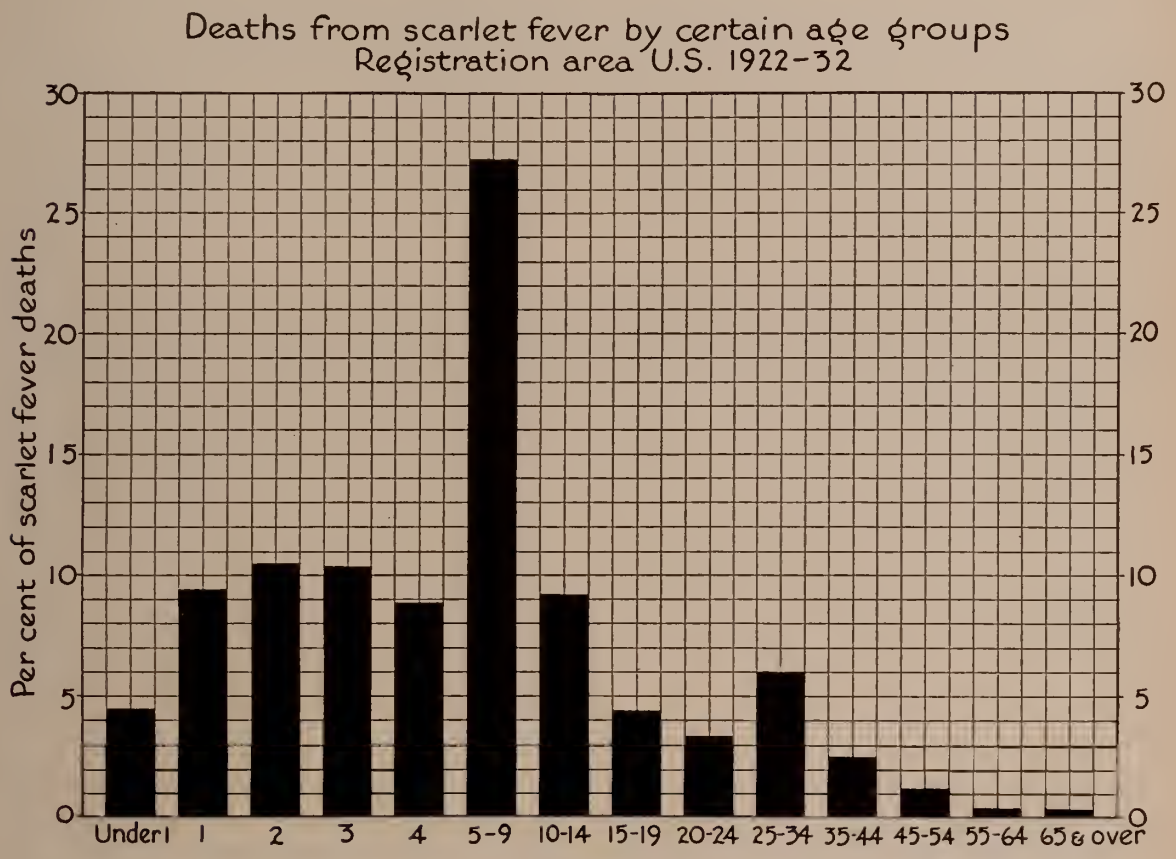


Figure 3.

Illinois has gone back to the four-week quarantine period, but will this alone solve the problem? A rational quarantine rule for scarlet fever would base the release from quarantine upon negative cultures for hemolytic streptococci following clinical recovery of the case.

An objection to this plan is that a long time frequently elapses before cultures become negative for hemolytic streptococci. It is impossible to predict how much the quarantine period would be lengthened by requiring negative cultures. The same principle, however, determines the release from quarantine in diphtheria and typhoid fever. Hardship would be exerted upon certain individuals, but would the end results justify the procedure? Hoyne[2] has shown that with a three-week quarantine period 7% of hospitalized cases of scarlet fever gave rise to return cases. With a four-week period, 4.3% of the discharged patients transmitted scarlet fever after returning home. When negative cultures were required for release, this rate fell to 2.9%. Lucchesi[3] stated that in Philadelphia quarantine is maintained for 30 days, and he believes that the low return-case rate of about 3% is due to the longer quarantine period.

The long residence in a contagious disease hospital that this plan would involve would tax the capacity of hospitals and prevent hospitalization of acutely ill patients due to lack of room. It is possible that with a longer quarantine period fewer cases would occur and the present hospital capacity would be adequate. Furthermore, 75% of the cases of scarlet fever are cared for in the home and it is estimated that only one quarter

of those admitted to hospitals are in need of hospitalization.

It is a widely accepted belief that the hemolytic streptococcus is an almost universal inhabitant of the normal human nasopharynx; the literature contains few adequately controlled studies on this question. To refute the view that most people carry hemolytic streptococci the following may be cited: Nearly all authors have taken patients in the dispensaries of hospitals as normal individuals, or hospital attendants and nurses. The former are hardly normal or they would not have applied at the dispensary and the latter, as Seifert points out, are in close contact with the ill and may easily become carriers. Bourn[4] and her associates studying 1,460 individuals, medical students and out patients of the surgery and pediatrics departments of Johns Hopkins Hospital, found only 10.4% of 2,812 cultures positive for hemolytic streptococci. The age group under 10 years showed the highest percentage of positive cultures, with a decline as the age increased.

In a survey of grammar school children in Illinois still in progress, 1,300 grammar school children have been cultured, of whom 284 were found to be carriers of hemolytic streptococci. Since these are the younger children, the incidence would be expected to be higher than in the general population.

While it is true that the hemolytic streptococcus is widely distributed in the population, a majority of individuals do not carry this organism and, furthermore, the older age groups are unimportant as vectors.

Release from quarantine on negative cultures is further objected to because of the inability, without tedious laboratory procedure, to determine whether or not a given streptococcus can cause scarlet fever. In a recent survey made in Illinois it has been shown that 90% of the carriers of hemolytic streptococci harbored types frequently causing scarlet fever, and further, that of these 90%, 88% produced a toxin that was neutralized by commercial scarlet fever antitoxin. Those strains that produced toxin not neutralized by commercial antitoxin might still cause scarlet fever, as Blake and Trask[5] have shown.

Since practically all children that carry hemolytic streptococci carry those whose toxins are neutralized by scarlet fever antitoxin, the question as to pathogenicity is not important. The important thing is whether or not an individual is carrying hemolytic streptococci. The work of the English investigators and of Dochez and of Wadsworth in this country points to the fact that any hemolytic streptococcus that is pathogenic for man may cause scarlet fever.

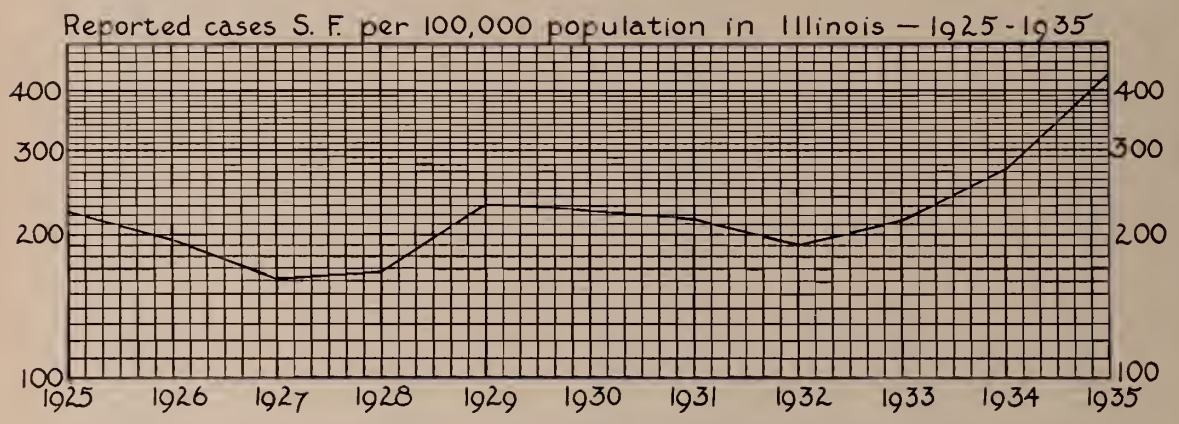


Figure 4.

Sore throats among contacts of scarlet fever patients are extremely common; that these are caused by organisms causing scarlet fever has been shown by Stevens and Dochez[6] and by Bailey.[7] In Stevens' and Dochez's series of cases the evidence is all but irrefutable that the sore throat patients directly transmitted scarlet fever to their familial contacts.

The problem then becomes one in control of the hemolytic streptococcus, not the control of scarlet fever, erysipelas and hemolytic strepto-

coccic sore throats. The situation is identical with the typhoid fever situation forty years ago. The satisfactory results obtained in the reduction of mortality and morbidity due to this disease were accomplished, not by controlling the case, but by presenting the ingestion of the causative organism with our food and drink.

The control of the organism in the streptococcic diseases involves, primarily, control of individuals, although milk must be watched. The control of individuals is difficult, but in school children much can be done. A case in point is that of a school where scarlet fever was epidemic. The children of the school were cultured and all those carrying hemolytic streptococci segregated in a group that was taught separately and had recess at a different time from the rest of the school. The carriers were cultured weekly and returned to the non-carrier group on negative cultures. This procedure effectively stopped the progress of the disease through this school.

The seating arrangement, in those schools where seats are assigned to pupils, may be utilized to aid in the control of scarlet fever and sore throat. The principle involved here is the removal of the air contaminated by the vectors, before it can reach the normal children in the room. This method may be used only where artificial ventilation is employed in the school and it presupposes a knowledge of those who are carrying hemolytic streptococci. These are local problems, created by local conditions, and should be handled by the schools through the school physician and the local health authorities.

The cost of culturing a room of children in a school is small and the actual cost of medium is less than five cents a culture. The time necessary to culture the school population is not great —three hundred cultures may easily be made in a morning. Certainly this small outlay of time and money is well spent if a case of scarlet fever be prevented.

To cope adequately with these problems, trained school physicians are needed. Physicians, trained in communicable diseases, should be the choice for school physicians. While the school nurse or county nurse may render valuable assistance to the school doctor, the final responsibility of disease control rests with the physician.

Local health departments should concern themselves with surveys of carriers of hemolytic streptococci among the school children in their jurisdiction. A close cooperation between local health departments and the trained school physician will go far in the control of communicable diseases.

It is entirely possible that the new drug, para-amino-benzene-sulphamide, may prove of great value in the treatment of the carriers of hemolytic streptococci, but at the present time its value remains to be proven.

Active immunization against scarlet fever as a method of control is of questionable value. In institutions where it is practiced, the attack rate for scarlet fever has been reduced, but there is

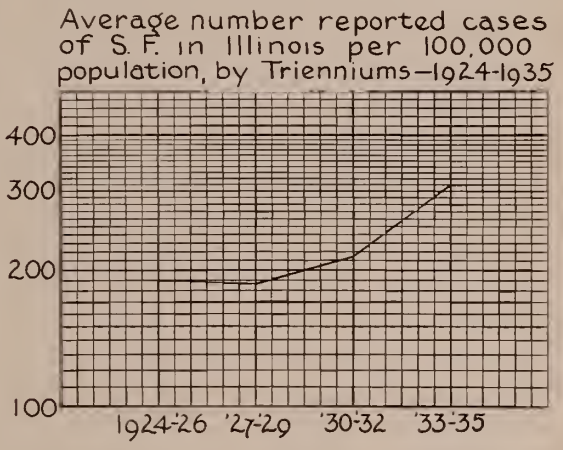


Figure 5.

no evidence that other streptococcic diseases, notably sore throat, have been affected. Hoyne[8] reports that the sore throat attack rate among immunized student nurses is 34.6%, a fact that casts considerable doubt upon the efficacy of immunization to control streptococcic morbidity.

The problem in control of streptococcic diseases resolves itself into the control of the organism. This means:

1. Control of milk.
2. Control of the normal carrier.
3. Control of hemolytic streptococcic sore throat in any of its forms.

Pasteurization of the milk supply is the only measure necessary for the control of milk-borne streptococcic morbidity.

The control of the normal carrier is a more difficult problem, one that for the present must be passed over unless an unusual amount of strep-

tococcic diseases is present. In the face of such a situation one is justified in recognizing that practically all carriers are carrying virulent organisms and as such are potential foci of the prevailing disease. Under these conditions isolation, if not quarantine, is a reasonable control measure.

The control of hemolytic streptococcic sore throats is probably the greatest problem in the control of the more readily recognized streptococcic diseases.

An illustration of these cases frequently causing scarlet fever is the case of the older of two children who had a sore throat and developed with it a peritonsillar abscess. This was drained in a hospital. Three days after returning from the hospital the younger child, who had not been out of the house during her brother's stay in the hospital, contracted scarlet fever.

Another example is that of an interne, suffering from a streptococcic sore throat, who transmitted scarlet fever to the diphtheria patients he was treating. There were six cases in this epidemic.

Many similar cases lead one to the conclusion that the hemolytic streptococcic sore throat is the most important factor in the spread of streptococcic diseases. Control will come only when the profession at large recognizes this fact and considers any hemolytic streptococcic sore throat as a source of danger to others; in other words, as a potential source of scarlet fever, erysipelas, puerperal sepsis, or sore throat.

1853 West Polk Street.

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DISCUSSION

Dr. Arlington Ailes, La Salle: There is an old saying that it is not so much what we know that gets us into trouble as we know so much that isn't so. It looks like here is another case where we may have learned some things that are not so. It seems to me that the gist of the paper lies in trying to prove to us that scarlet fever, septic sore throat, erysipelas and puerperal fever are all caused by the same organism. Now, I can't discuss this paper from the standpoint of a bacteriologist. I have to discuss it from the standpoint of a practical health officer. I can agree with a portion of his paper and agree very heartily, almost to the point of certainty, that we do have sore throats without rashes and sore throats with rashes that have apparently the same specific cause. Oftentimes the sore throat without a rash is primary and the sore throat with rash is secondary, but many times it is vice versa. My observation is that very often we have children or adults with sore throats only, who apparently give their disease to others who develop rashes. At best we have no knowledge at all and can find no evidence of their being infected from any other source. Very often we have cases of scarlet fever in our children followed by sore throat, without rash, in the adults or immediate members of that family.

Recently we had a little epidemic of scarlet fever in one of our schools in the first and second grades. We had no scarlet fever in the community that we knew of. We did have a little epidemic going on that was called the "flu." Some children of a family of seven were absent from this school because of illness. They called a doctor for one of the children. There seemed to be a little upper respiratory infection, with sore throat and fever, but there was no rash. The doctor called it influenza. Later on another child in the same family developed a sore throat, with the same symptoms. They called another doctor—they were a family on relief—and he also diagnosed it as influenza. A nurse was in the home about three times but saw no rash. Yet, at the end of two weeks one of the young children of this family came back to the second grade of this school, and twenty cases of scarlet fever developed. Five of those cases, however, had no rash. We quarantined them for 28 days on suspicion, because there was a little fever and sore throat which developed at the same time as the other illness in the grade. In another family, of this same epidemic, there was a girl seventeen years old who desired to stay away from the home. She did so for ten days, but when she came back into the home she developed a severe sore throat, which necessitated calling a general practitioner, and he in turn called a throat specialist. The diagnosis was quinsy and because of no rash was not thought to be scarlet fever, and the family prevailed upon me to release the case. I, of course thought we were dealing with scarlet fever since the case occurred in the same home, where we had definite evidence of scarlet fever. I released the family in four weeks, which made this girl have an illness of two weeks, and I released her also on negative cultures. I do not ordinarily release by culture but here I did defer somewhat to the opinions of others and released this girl. We don't have much scarlet fever, apparently, among our adults and I think they form a small factor in its spread.

I remember two years ago Dr. Smiley talked to us at Springfield, at the health commissioner's conference, in which he traced an epidemic of septic sore throat to a case of scarlet fever at a milk distributing plant. A number of us immediately asked Dr. Smiley how he could trace an epidemic of septic sore throat to a case of scarlet fever. He said, "I can't tell the difference between the organism that causes septic sore throat and that which causes scarlet fever, nor can any of you." Well, of course, we couldn't, or I couldn't. So, we had to let it go at that.

I remember last year Dr. Dean Davis of the University of Illinois medical school presented a paper in which he said that septic sore throat in its pathology, epidemiology, symptomatology and course was as definite a clinical entity as was scarlet fever, diphtheria, or measles, and he also went on to consider the special laboratory and cultural characteristics of the bacillus. He stated that there were areas in the world in which they did not have any septic sore throat, probably due to the fact that they boiled their milk or allowed it to ferment. These same areas have scarlet fever however.

It seems to me rather strange we have an epidemic of septic sore throat and don't quarantine for it, if it can change so suddenly to scarlet fever. We say it comes through milk, and that the infection gets into the udder of the cow through the milk canal of the teats, but when it comes back out with the milk it spreads as septic sore throat. I can't understand why the streptococci should be so modified in the udder of the cow that it will come out as septic sore throat and not scarlet fever, and cause no contact or practically very little contact infection. While if the milk is directly infected we can have an epidemic of scarlet fever and have a high rate of contact infection. We apparently don't have epidemics of scarlet fever or other streptococcic infections running promiscuously in to each other. In your epidemics of septic sore throat or scarlet fever they hold pretty true to form. In fact, I have never encountered an epidemic of septic sore throat, but have had many of scarlet fever. I believe Lee, Massachusetts, had a thousand cases a few years ago, and nearly forty deaths, all traced to one cow. However, our friends tell us the organism is the same as that which causes scarlet fever, erysipelas, or puerperal fever—only modified in the udder of the cow. I can't understand why this can be so, when the organism is only in the milk of the udder. Yet we all know that smallpox can be modified to cow pox in the body of the cow. So, it seems to me there is considerable doubt about this transformation of the hemolytic streptococcus. The doctor says, it depends upon the host or the soil for its changes, and shows a graph of erysipelas deaths as occurring mainly at the extremes of life. We know erysipelas is not at all comparable to scarlet fever, because the records of the State Health Department show we have only one case of erysipelas to thirty-five cases of scarlet fever, and we also know that erysipelas is prone to attack in the extremes of life. At one end of the graph he shows a high fatality rate and at the other extreme of life another high fatality curve, and to prove his point he fits scarlet fever between those two extremes, claiming the soil makes the difference. In our experience this is not true. We had something like 33 cases of erysipelas reported in 12 years and not a single one of these occurred under three years of age. We had three deaths, one of which occurred at about twenty-five years of age and two around fifty years of age.

The picture of scarlet fever, it seems to me, would more appropriately fit the picture of diphtheria. If we take the doctor's theory, it seems to me we have to forget all we have learned about immunology. Take the statistics in our district for scarlet fever for twelve years; in the first five years of life we had a total of 258 cases, the second five years 667, the third 416, and then a rapid diminution of incidence. The same thing is true of diphtheria. When the child is born it carries over some immunity from the mother, which prevents it from being infected very early in life from both scarlet fever and diphtheria. Later the child becomes susceptible, but the exposure isn't so great in the pre-school period. When the child enters school the exposure is much greater and the incidence increases rapidly. Then immunity develops and the incidence rapidly decreases. This picture is not true of septic sore throat nor the immunity gained by having scarlet fever does not protect against septic sore throat. They may say that the only immunity gained is against the rash and not against the sore throat. Well it seems strange that epidemics of septic sore throats do not produce more rashes if it is the same organism that causes scarlet fever.

The doctor mentioned also that the incidence of scarlet fever was on the increase, and showed graphs to prove that a difference in the quarantine period is the cause of it, which I deny. I deny that shortening the quarantine period from four to three weeks, with an additional week out of school, affects this increase. I believe the doctors generally are now much more alert than they were formerly and are reporting many more cases than they did before.

I believe there is a vast difference between releasing a scarlet fever case from the hospital to the home, where there are 24 hours of intimate association, and releasing a scarlet fever case from the home to the school where there is only five and a half hours of not nearly such close association. In my experience as a health officer, I have never found, where I have held the child in quarantine for three weeks, with an additional one week out of school, that there have been secondary cases coming out of the school from my case going back to the school. However, several times, where we have excluded a child to a neighbor or to relatives, where there were no children, and allowed it to come back into the home at the end of three or four weeks, it has come down with scarlet fever. I would like to have back again three weeks quarantine with four weeks out of school, because I get much better parental cooperation. I want to submit also that

we should adopt a liberal quarantine, leaving the wage earners to go to work, provided they don't come in contact with the children or the food supply, so that you get better parental cooperation. The mothers say, "I don't mind the quarantine if my husband can be with me at night." Of course getting more of the cases of scarlet fever under quarantine doesn't reduce our incidence rate but, in my experience, it has greatly reduced our mortality rate. I thank the doctor for his stimulating paper and the honor of discussing it.

Dr. Gottfried Koehler, Springfield: I was very much interested in Dr. Bailey's paper, not from the standpoint of a bacteriologist but from the standpoint of a school physician. In Springfield we have been threatened with scarlet fever during the past three winters. We had scarlet fever all around us. It was the mild type and, therefore, very hard to control. For instance, last year we had 240 cases among school children without a single death. I recall two cases from the homes of doctors who had sore throat and afterwards showed scarlet fever peeling. We found it very difficult to control the situation. After consulting with Dr. McShane and Dr. Tucker we decided upon a method of culturing these cases of sore throat. We have developed that method and had very good success with it. We did not culture the children in school rooms, unless scarlet fever occurred, because if we found the streptococcus hemolytica in healthy children we would not know how to get rid of it. But we did culture for the bacillus where there had been several cases of scarlet fever, and we cultured especially those cases that had been out of school for a day or so. We found quite a percentage of those cases were streptococcus carriers, and we excluded them from school until we had two negative cultures. By proceeding in that way we stopped several outbreaks of scarlet fever in the schools. A few months ago we had six to eight cases a day. Then we concentrated on culturing and we excluded from the schools all the streptococcus carriers in the rooms where scarlet fever had occurred. Several of these carriers which we found in school gave a history of a slight sore throat and afterwards developed peeling. We find there is frequently a relationship between the occurrence of sore throat and scarlet fever. Only yesterday afternoon, when I was getting ready to come here, I was called to a home where a doctor had diagnosed a case of streptococcic sore throat in one child. In the school they found the other child in the same family peeling on the hands and feet. The family called their own doctor in and he agreed with me that it was a case of scarlet fever, apparently about three weeks old. The other child that he had treated had a sore throat about three weeks before. That child was not peeling. These two children are being cultured today and if they show streptococci present they will be kept out of school.

I think we have a distinct aid in the control of scarlet fever by making these cultures. I do not see how we can control it if there are cases of sore throat that spread the disease. If they are mild cases of scarlet fever we have no way of recognizing them unless we can by culturing exclude those that show positive cultures of streptococcus.

I am not altogether in disagreement with the statement that Dr. Bailey has made in regard to the relationship between streptococcic sore throat and scarlet fever because we so many times see cases of sore throat, with positive streptococci and followed in the school room by cases of scarlet fever.

Dr. C. C. Ellis, Moline: Last year I came into active local health officer work in Moline and in the fall we started to have some scarlet fever in the schools and it went on until a number of cases had developed. I wrote to Dr. McShane and asked him if he could suggest something. He sent Dr. Bailey up to see me and when he arrived we went to work. I believe some of the cases he referred to in his paper were cases in that school. We commenced culture work at once and then found a large percentage of carriers. The proposition was made to separate the carrier population from the non-carriers at once, and let them all attend school in separate sessions. This seemed to work very well. It reduced the rate of incidence immediately, although we had a few cases—no great number however. After some time, though, we ran into this situation, that the convalescents did not become negative. Then the question came up, what to do. We finally decided we would have to bring them back to school. They could not stay out forever. Some of the tonsils could not be taken out. Some of the parents would not consent. There was no way to take the tonsils out or force them to do this, and besides we did not know whether that would do any good or not. So, they came back to school after, I think, eight or nine weeks of separation. But by that time something had happened in those throats. After being virulent, they became avirulent or relatively so. We got no further cases of scarlet fever in that school.

At this juncture I found something unusual—a milk-borne epidemic. The infection came from a cow. The first case was unreported. The second case in the township was reported to me by error. I reported it to the supervisor, who could not get there because of the snow. Then the next thing we knew two or three cases occurred in the town and we found they were all from one dairy; then six or seven cases. I asked the dairyman if he knew there was any scarlet fever on his route, and he said, no. I said, "Do you know of the case of Mr. L., a farmer?" And he remembered that he had a man that gave him milk, and that was the case that had been reported to me from the country. This case was referred to the State Department. The cow was found to be carrying scarlet fever germs in the udder, and I have the statement in black and white from the Department, that that is the first known case where scarlet fever was absolutely traced to a cow and to the cow's udder. So you can have cases of scarlet fever as well as septic sore throat from the cow.

I have used this culture method after that experience in all cases. And we hold everybody in quarantine until we get rid of some of them as carriers. I maintain the quarantine in this way; those in high school I send back immediately; those in the junior school I let go back soon, realizing that the incidence was not high in those schools. It is in the lower grades. The children in the lower grades we hold until they have their tonsils out, until the school ends, or they become negative. Finally all of them go back and then nothing happens. Our scarlet fever epidemic ends and as summer comes there is not a case left.

I feel that with culture control you can do a lot, and with a protraction of the quarantine where necessary, rather than an arbitrary general shortening or lengthening of quarantine, you can prevent convalescent carriers. It does seem that these streptococcic germs become avirulent, or that they are subject to mutation. I think the virulence goes up to a certain point and then goes down, but I am not sure of that.

The Doctor will have to prove conclusively to me that these diseases he discusses are interchangeable. I think there are conditions that he has described that probably cause the mutability.

I think we should have one more thing to add to our control and that is this: When I get a negative or two negatives or three negatives, will Dr. McShane let me turn the case loose in three weeks? He has refused so far. He has said, "no shortening of the four-week period."

Dr. John J. McShane: Dr. Bailey, in your study of the different diseases that you have reported on, did you find more than one type of streptococci in this group? If there is a large number of varieties of hemolytic streptococci, I would like to be advised whether you found more than one, two or three strains among this group.

LESSONS LEARNED FROM A BLIND SCHOOL SURVEY

ROBERT J. MASTERS, M. D.

INDIANAPOLIS, INDIANA

Four years ago a statement was encountered to the effect that many State Schools for the Blind have very inadequate and inaccurate records of the causes of blindness of their students. This almost incredible charge led to an investigation of the records at our own Indiana State School for the Blind. Only about five minutes of study were required to determine that no records could be worse than those of our school. A few examples of the causes of blindness given on the entrance applications of the students, together with the causes determined by examination, are shown in the following list.

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, Peoria, May 18, 1937.

CAUSES OF BLINDNESS

TABLE 1 Given on Application	TABLE 2 Found by Examination
1. "Following flu."	1. Buphthalmos.
2. "Do not know."	2. Ophthalmia neonatorum.
3. "As near as we know, skull fracture."	3. Hereditary macular degeneration. Optic atrophy.
4. "Chicago specialists could not determine."	4. Albinism with macular degeneration and optic atrophy.
5. "Right eye, trauma. Left eye, congenital amblyopia."	5. Right eye, corneal scar, reads Jaeger No. 3. Left eye, syphilitic chorioretinitis with extensive scars.
6. "Right eye, tumorous condition. Left eye, cataract."	6. Right eye, persistent tunica vasculosa lentis with mal-development of iris. Left eye, uveitis with cataracta complicata.
7. "Fall on the head plus blood disease."	7. Luetic disseminated chorioretinitis with optic atrophy.
8. "Neglect."	8. Ophthalmia neonatorum.
9. "Born blind."	9. Congenital cataract.
10. "Inheritance."	10. Congnital aniridia and upward dislocation of lenses.
11. "Eye-Ritus."	11. Interstitial keratis and uveitis.
12. "Doctor used too-strong drops in the eyes at birth."	12. Ophthalmia neonatorum.

With the firm belief that no study could be more interesting than that which was greatly needed and long overdue at the school, a systematic survey of the student personnel was undertaken and has only recently been completed. Many diagnostic problems were encountered, which are deserving of comment. Several lessons were learned, which should arrest the attention of every ophthalmologist.

The diagnostic difficulties were dependent upon several factors. One of these was the complete lack of an adequate history. Nothing more than the foregoing chart is required, to give a vivid understanding of the kind of histories which were available in writing. The histories given by the students at personal interviews were indefinite and valueless. Thus nothing remained but to reach a conclusion, as to the cause of the blindness of each eye, by examining it externally and ophthalmoscopically. Fear of the examination disturbed some of the students, and made thorough inspection difficult. Rapid nystagmoid movements of the eyes, or inability to fix the

gaze, made of the ophthalmoscopic examination a challenging task, especially trying since most of the inspections were made through undilated pupils. The abstinence from use of mydriatics was the result of a promise made to the superintendent in office at the time the examinations were first undertaken. Our present superintendent, Mr. Robert Lambert, has been most cooperative, and under his regime there have been absolutely no restrictions to hinder satisfactory work.

With no histories and only objective findings to aid in differential diagnosis, the resulting problems were many. For example, the eyes of two chldren exhibited pictures quite typical of the sequellae of ophthalmia neonatorum. One of these, under careful observation since she was ten days old, has never had a conjunctivitis. She was born with corneas which had failed to clear, plus microphthalmia and sclerotics congenitally thin. The other child had a definite history of destructive corneal ulceration which complicated scarlet fever at five years of age, with normal eyes prior to that time. Without histories, both of these diagnoses might have been wrong. Even so, without histories on most of the students examined, there may be several diagnoses wrongly determined and recorded in the table to follow shortly.

After arriving at reasonably accurate determinations of the causes of blindness, their classification presented further difficulty. Correct grouping of the large number of optic nerve atrophy cases was hindered by frequent doubt as to their underlying pathology. Furthermore, many of the eyes suffering from aberrations in development exhibited many different anomalies: congenital cataract or coloboma of the iris were sometimes associated with microphthalmia; congenital coloboma of the macula showed an accompanying optic atrophy; and one pair of eyes exhibited congenital cataract, optic atrophy and macular degeneration. The classification which was finally evolved is listed in the following table:

TABLE OF CAUSES OF BLINDNESS

(152 Students Examined)

Cause	Number	Percentage
1. Optic atrophy		
a. Associated with congenital or hereditary retinal maldevelopment or degeneration	15	
b. Postneuritic	10	
c. Assoc. with luetic chorioretinitis	9	
d. Assoc. with congenital macular coloboma	5	
e. After meningitis	5	
f. Associated with pigmentary degeneration of the retina	3	
g. Cause not determined	2	
Total	49	32.2%
2. Congenital cataract (Some with dislocations, microcornea, O.A., retinal degeneration, etc.)	31	20.4
3. Ophthalmia neonatorum	21	13.7
4. Uveitis (with sequellae)	11	7.2
5. Buphthalmos	10	6.5
6. Interstitial keratitis Three sequellae of uveitis, one with O.A.	10	6.5
7. Congenital aniridia	4	2.6
8. Trachoma	3	1.9
9. Sympathetic ophthalmia	3	1.9
10. Coloboma of iris, ciliary body and choroid, microphthalmos	2	1.3
11. High myopia	2	1.3
12. High hyperopia	1	0.65
13. Corneal ulceration with scarlet fever	1	0.65
14. Microphthalmos, congenitally opaque corneas	1	0.65
15. Neuroepitheliama (both eyes enucleated ten years ago)	1	0.65
16 Albinism	1	0.65
17. Cause undetermined (examination not permitted)	1	0.65

The interesting ophthalmological survey of the Illinois State School for the Blind, reported in the July, 1934, issue of the *American Journal of Ophthalmology* by Adams, Gamble, Gifford and Gradle, revealed the fact that approximately 25% of the students in the school belonged in sighted classes. Of these, 7.5% belonged in public school, and 17.2% were candidates for sight-saving classes. The close approximation of these figures to the findings at the Indiana State School is immediately apparent upon examination of the following chart. (The ability to read Jaeger types, upon which many of the visual acuity estimates were made, may be open to criticism. However, this test would seem to give a fair idea of the students' ability to acquire sighted or partial-sighted training.)

Students who need blind school training	114	75%
Students who should be in sight saving classes. (J. 12 to J. 7 inclusive at 20 cm.)	33	21.7%
Students who should be in public school (J. 6 or better at 20 cm.)	5	3.3%

In a second communication (A. J. O., January, 1937), Adams, Gamble, Gifford, and Gradle, reported a reduction of the students who should be in public school to 3.1%, with all of the

17.2% who needed it, receiving sight-saving class instruction at the school. This is an excellent economic and social contribution, which we are still lacking in our Indiana School.

Not long ago the monthly meeting of the eye staff of the Indiana University School of Medicine was held at the School for the Blind. At this meeting a large group of students was exhibited, some because their eyes presented problems in diagnosis and others because they represented interesting aberrations in development. Some of the men commented about the remarkable museum of pathology which they had been privileged to study. Others were depressed by the utterly hopeless condition of the large number of eyes which they had seen. But the greatest number of them remarked with deep feeling about the large number of blind eyes which should not have been blind. This thought is the one which most arrestingly and depressingly overshadows all others, when any large group of blind children is examined. The blindness of so many of them is so unnecessary and could have been so definitely prevented.

The children in our school with preventable blindness have been tabulated as follows:

1.	Ophthalmia neonatorum	21 Cases	
2.	Interstitial keratitis	10 Cases	
3.	Uveitis, at least some of the	11 Cases	
4.	Optic atrophy with luetic chorioretinitis	9 Cases	
5.	Trachoma	3 Cases	
6.	Sympathetic ophthalmia	3 Cases	
7.	Congenital cataract (birth control)	9 Cases	of 31
8.	Congenital aniridia (birth control)	3 Cases	
9.	Buphthalmos	10 Cases	
	Total	79 Cases	

There seems to be deeper irony in the fate of these youngsters when we note how very profound is the visual loss of some of these very children who should not be blind at all, those with the sequellae of ophthalmia neonatorum, sympathetic ophthalmia, buphthalmos and leutic optic atrophy being vivid examples. No child should have interstitial keratitis. It is reasonable to believe that most cases of uveitis should be saved from blindness by early, adequate and persistent treatment. A woman may reasonably expect to have children without congenital cataract (unless she and her husband are both so afflicted themselves, as were the parents of two of our students). But if she deos have one child with congenital cataract, why should she have four, or three, or two with this condition? In the group of nine preventable congenital cataract cases, listed in the above table, only those *after* the first one in each family are included.

It is this large percentage of children with preventable blindness which hurls an unavoidable challenge to the ophthalmologists. What are we going to do about it? How can we give the best service in this branch of preventive medicine? Very little thought leads to the firm conviction that we can do very little by ourselves. We may work our hearts out in the effort to save eyes already on fire with gonorrheal ophthalmia, uveitis or sympathetic ophthalmia when they come under our care. But before we come into the picture someone should have known better than to have allowed these conditions to occur. Some of us, who are privileged to work with groups of blind young people, find several of them who are anxious to discuss the question of their marrying and having children. But our opportunities are few for advising young people about their prospective parenthood.

Further thought soon leads to the conclusion that our fellow physicians and the social service workers are the two groups upon whom we must depend for our help in this work. As in other branches of medicine, there are many phases of ophthalmology which depend for their successful management as much upon competent, well-trained social service workers as they do upon the physicians themselves. Any physician who has enjoyed the cooperation of a well organized social service department will agree with this statement. Our cooperation with the social workers should be unreserved, careful and conscientious, whenever it is asked of us.

Of all the lessons learned during this survey, the most impressive is how utterly dependent are we ophthalmologists upon our fellow physicians, for aid in the prevention of blindness of children. We are often asked, by our local medical societies, to prepare papers for their programs. No subject should be of more interest or value to them than the prevention of blindness. It is in fact our duty to periodically bring this subject to them. We should remind them of the importance of routine prenatal Wassermann tests upon their expectant mothers, with treatment of mother and child as indicated. Interstitial keratitis and chorioretinitis of congenital lues can be

thus eliminated. We should review with them the correct application of Credè treatment to new-born babies' eyes. Silver nitrate conjunctivitis, when it occurs, need not be embarrassing and it does not blind babies' eyes. Careful routine observation of the eyes of children during attacks of febrile disease, with determination of the exact cause of all "red eyes," may prevent blindness from the effects of untreated uveitis. All men engaged in obstetrics and pediatrics, either as specialists or in connection with their general practice, should know how to use an ophthalmoscope well enough to discover opacities in the media and gross lessions in the fundus. The family doctor, discovering the presence of congenital cataract in the first child, can intelligently and logically explain to the parents how great is the possibility of congenital cataract in any further children they may have. His check on the size of the globe, the diameter of the cornea, may bring the child with buphthalmos to the eye surgeon in time to save useful vision. We should talk about these things to our colleagues in other branches of medicine until they get tired of listening to us.

As a concluding thought, would it not help in the prevention of blindness if each one of us reported to the proper organization every new case of blindness, in child or adult, occurring in our own practice every year? In Illinois, your own Society for the Prevention of Blindness should receive these reports. In Indiana we have no such State organization as yet, but the National Society would eagerly welcome such valuable data. To this suggestion the objection has already been raised that much duplication would occur, as these blind people go from one doctor to another in search of aid. Giving the patient's name would avoid this, as would also our definite adherence to the rule of reporting only those patients who lost their vision while under our own treatment.

23 East Ohio Street.

DISCUSSION

Dr. Austin A. Hayden, Chicago: I want to thank Dr. Masters for the tabulation he made in Article 4 of the Chicago Survey. The article reads that the Chicago specialists could not determine the cause—and he very cautiously skipped that part. Seriously, Dr. Masters has given a very comprehensive resume of the situation in Indiana. I noted his figures, and of 79 cases cited, as he says a very large number were in the preventable class, 21% could have been saved by silver nitrate properly instilled. I regret that he did not state how many of these were physicians' cases and how many were midwives' cases or unattended.

In the matter of interstitial keratitis and optic atrophy, it is a strang thing, but it is a fact that of all the progress made in medicine since the Wassermann test was introduced for syphilis, only a very few hospitals in the country have a Wassermann blood test, to say nothing of spinal fluid test, made routinely in all obstetric cases. I had occasion to call attention to this not long ago before the American Medical Association Section on Ophthalmology, and I found that ophthalmologists were not very keen about the observation of this, and that obstetricians were almost in the same classification. I am told that a Wassermann-negative mother cannot give birth to a syphilitic child, and that even if the disease is discovered as late as the third month of pregnancy, a case of interstitial keratitis rarely happens.

I was impressed by what Dr. Masters said about the value of the social worker. Miss Audrey Hayden was responsible about three weeks ago for a broadcast over one of the large Chicago radio stations, on Sunday at twelve o'clock, and I heard this while riding through Indiana, and it had to do with the same subject of building better citizens. It was put on by some association in Chicago, and very dramatically presented the thought you expressed when you said the social worker has a place in this campaign. Let me say that the moving picture of syphilis that is being produced by the United States Public Health Service and the American Medical Association, will have, I hope, a very stimulating effect in making for a much more active campaign on the part of all doctors, public health, private and clinic, toward the elimination of syphilis. Of course nobody things syphilis will be eliminated, but the effort is toward the reduction of the prevalence of syphilitic disease.

Dr. Philip Corboy, Chicago: I would like to ask one question, not dealing with the fact that the mother can be tested. It has been my impression that pediatricians differ as to the value of a Wassermann or a Kahn in the child, and it has been my experience that neither has any significance in the first six months of life in making serological diagnosis.

Dr. C. W. Hawley, Chicago: I am not competent to discuss the statistics of blindness, but I can discuss the question of ophthalmia neonatorum. I do not believe a single child need lose an eye from this cause. That is a broad statement. I had a clinic in Cook County Hospital for many years, and of course we had many cases there, and in all the cases I saw I never lost an eye or had a blind eye. I learned how to take care of ophthalmia neonatorum, and I believe I can say that not a single baby need lose its eye if taken care of properly. This is not the place to tell how to do it, and I will not discuss that, although I have done so before. What I say is true, as you may know if you

believe my reputation for truthfulness and veracity. I had a large clinic at the Post-Graduate Hospital and here too a good many babies were brought in with opthalmia neonatorum. We had some cases of gonorrheal ophthalmia in older patients, and these cases were taken care of in the same way with very satisfactory results.

Dr. Robert J. Masters, Indianapolis (closing): I wish to thank all the discussors, particularly Dr. Hayden for emphasizing the great things that can be accomplished in the way of prevention of those forms of blindness which are dependent upon congenital lues. I only included the "specialists not able to determine" case, because it was one of the funny causes of blindness that came in, and of course there was no way of telling that an eye physician had really seen the child in question.

Answering the question as to early Wassermann, it is my impression that during the early months of infancy the Wassermann test is not as reliable as we would wish. This emphasizes the importance of prenatal tests in the mother. When the tests are so readily available these days, free if necessary by the State laboratories, they should be routinely made.

In outlining the things to discuss with men in general practice at home, I only tried to touch upon a few of them. I believe it is interesting to a general medical society to hear a talk on the causes of blindness as they relate to the cases in which men in their own practices may help in the prevention of blindness.

SOME DANGERS OF RAPID DIURESIS

M. Herbert Barker, M. D.
CHICAGO

The literature abounds with articles on diuresis, but very little is said about certain dangers of rapid diuresis in that great group of cardiac, renal and renal-vascular disease which makes up our greatest number of cases of edema. With the improvement of diuretic management, edema as such is much more readily controlled and we are too frequently tempted to watch the urine volume curve or weight drop without sufficient regard to the concentration of the waste products which may be less easily eliminated. Certainly, during diuresis, the piling up of minerals or medication with a resultant acidosis, uremic state or drug poisoning readily occurs.

Diuresis has always been a problem to the physician. The patient is usually more disturbed over the external evidences of a disease, so that a gross anasarca may instigate more vigorous therapy than a more serious disease which he is unable to observe. With the remarkable report on Foxglove by William Withering[1], came one of the greatest steps for relieving the patient of cardiac dropsy. Thus, digitalis opened a whole new chapter in pharmacology which still advances. The great array of zanthine compounds clearly show the continued demand for better diuretics. the same may be said of the mercurials. The use of calomel in the edema of nephritis appears as a regular practise in the protocols of Richard Bright.[2] Saxl,[3] Keith,[4] Barker and O'Hare[5] and others have written on the efficiency of the mercurials as a diuretic in cardiac, renal and other problems of fluid storage. We are all particularly indebted to Dr. Keith and his co-workers[6] for combining the use of a controlled ionic diet with the administration of ammonium chloride or ammonium nitrate as great adjuncts to mercurial diuretics. The experimental demonstration of the role of sodium and potassium in the storage and clearance of body fluids by Barker[7] lead to the successful application of these findings as a more physiologic control of clinical edema. Certainly, this liberal diet which is low in sodium, high in potassium with potassium chloride as a salt substitute may be well tolerated by chronically ill patients for long periods of time.[8] More recently Keith and Binger have become interested in the diuretic effects of potassium and they have shown potassium nitrate to be an efficient diuretic salt.[9] It is interesting that all of the above principles have been in use in one way or another for many years, but only in the last few years have sufficient studies been made to correlate the whole into quite an efficient diuretic regime. I regard the development of such a flexible program of diet, minerals and diuretics as one of the finest steps made for the comfort of the patient carrying edema and all that its control connotes in combating the underlying process.

It must be remembered that edema is only a symptom and that the fundamental problem must not be slighted. The volume of fluid in the edematous patient is frequently much larger than one's greatest estimate. This fluid must be cleared through the kidneys and often either the long standing passive congestion or actual renal vascular disease or both alter greatly

From the Bettie Soper Clements Ward of Passavant Memorial Hospital and the Department Experimental Medicine of Northwestern University Medical School.

Read before Section on Medicine of Illinois State Medical Society, at Peoria, May 18, 1937.

their ability to clear minerals and waste products of protein metabolism. No doubt nature's dilution of retained materials is often a most important physiologic safeguard. The reverse of the process, therefore becomes a most important

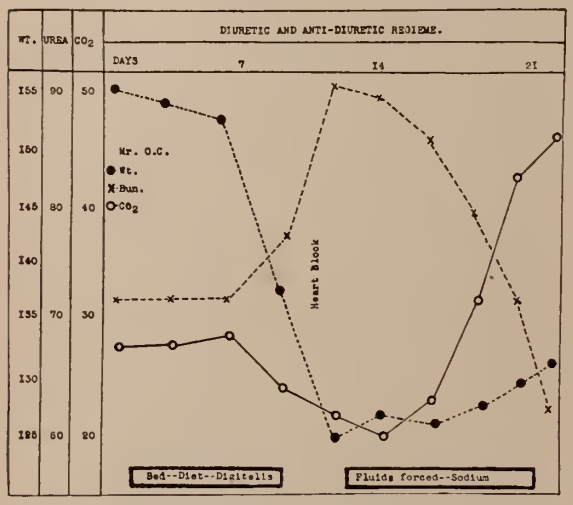


Figure 1. Note the rapid rise in the blood urea nitrogen and the fall in the CO_2 following the dieuresis. Heart block was associated with the concentration of digitalis in the edema fluid. An active anti-diuretic regime consisting of forcing fluids and giving sodium resulted in correcting the uremic manifestations as described in the protocal.

matter to such patients unless careful observation

The following three cases serve to show some of the dangers experienced in rapid diuresis. is maintained.

G. C. male, aged 34 years, complained of shortness of breath, nocturia, edema and ascites. The chief physical findings were blood pressure 158/128, pulse 90, regular, large heart, systolic blowing murmur at the apex, signs of fluid at the right subscapular region, liver down a hands-breadth, moderate ascites, and moderate edema of the sacrum and lower extremities. The chief laboratory findings were R. B. C. 5,370,000, Hgb. 12.0 grams, W. B. C. 14,100, urine +++ albumin, numerous hyaline and occasional granular casts. The phenolsulphonphthalein excretion was 4% for two hours and this was verified by repeated examination. The urea clearance was 10% of normal. The blood urea nitrogen was 73 mgms. and the carbon dioxide combining power was 26.8 volume %. A low sodium-high potassium neutral ash diet was started and digitalis I. B. D. was prescribed. Potassium chloride was used as a salt substitute. Reference to Chart I clearly shows the course which followed.

Graph I

As diuresis began and the weight began to fall, there was a concentration of the blood urea nitrogen from 73 to 91 mgms. and the carbon dioxide fell from 26.8 to 20.0 volume %. Headache, nausea, and orthopnea appeared. An antidiuretic regieme was initiated which consisted of stopping the digitalis, increasing the fluid intake from 1500 to 2500 c.c. per day and the addition of calcium carbonate 10 grams and sodium bicarbonate 5 grams daily. The diuresis continued for four days and the body weight continued to drop. A short period of coupling was followed by complete heart block (pulse 45). A rapid improvement followed the forcing of fluids, alkalinization and a period of balanced intake and excretion of fluid.

This case demonstrates the concentration of nitrogenous products, the deepening of the acidosis and heart block associated with a rapid diuresis. An active antidiuretic plan of stopping digitalis and potassium chloride and the addition of sodium bicarbonate and increased fluid intake, arrested the diuresis. Body weight increased slightly and there was a relief of symptoms. A return to the diuretic plan resulted in a complete loss of edema and a marked improvement of the cardiorenal state.

Mr. F. J., manufacturer, aged 50 years, a known severe hypertensive for years, complained of shortness of breath, weakness and periodic edema of the legs for one and one-half years. Headaches, nausea, marked edema, ascites and nocturnal dyspnea, for which he had entered two hospitals for the preceding eight months, were the chief presenting complaints. There was marked enlargement of the heart, rate 110, with a pronounced gallup rhythm. He was very stuperous and a uremic odor was noted. Blood pressure was 250 to

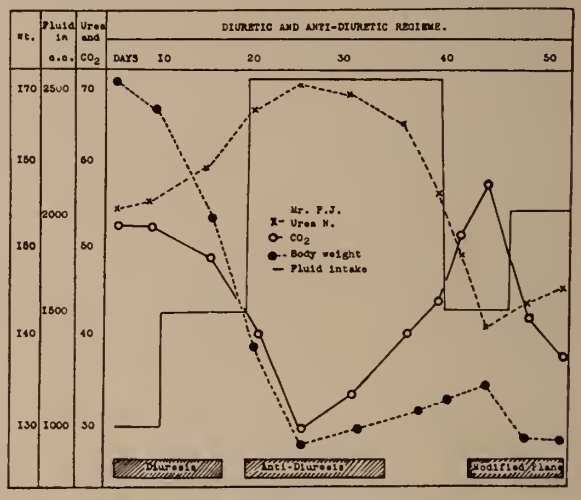


Figure 2. A rapid rise in blood urea nitrogen and a decrease in the CO_2 with uremic stupor following the dieuresis. Note the decrease in body weight. An antidiuretic regime of forcing fluids, change of diet to alkaline-ash type with the addition of alkaline salts corrected the acidosis and the uremic state. The patient was rehabilitated by a modified dieuretic program as described in his protocal.

260 over 140 to 156. The urine specific gravity was 1.012 and it contained 1 gram of albumin per liter. A moderate number of hyalin and occasional coarse granular casts were present. The phenolsulphonphthalein excretion was 4% and checked at 6% for two hours. Other laboratory findings were total serum proteins 7.94, serum albumin 4.46, R. B. C. 4,330,000, HGB 11.2

gms. and W. B. C. 8,350. The blood urea nitrogen was 55 mgms. and the urea clearance was 14.4%. The blood chlorides were only 440 mgms. The carbon-dioxide combining power was 54.0%. The management was started which consisted of an acid-ash, low sodium, high potassium diet. Because of the low blood chlorides and the need of chlorides for diuresis, two grams of ammonium chloride were given twice daily. A rapid diuresis began in 36 hours. Reference to Graph 2 shows the rapid increase of urinary output and the resulting weight loss. The fluid intake was increased as fast as tolerated. The diuretic regieme was interrupted as quickly as blood chemistry changes were noted. The carbon-dioxide dropped to 38 and the urea had increased to 64.5 mgms. in 20 days. The diuresis continued and the patient became more acidotic and uremic so that a vigorous anti-diuretic regieme was instituted. This consisted of an alkaline ash, low phosphorus diet, and the addition of calcium carbonate 15 grams and sodium bicarbonate 10 grams daily. Fluids were continued at tolerance. The diuresis was soon arrested and a marked relief of the symptoms was associated with the increase of his weight and with the improvement of the acidotic and uremic state. The patient was gradually completely freed of his edema, ascites, gallop rhythm and the other untoward symptoms by a modified diuretic plan of a neutral ash, low sodium-high potassium diet with 3-5 grams of potassium chloride in a shaker as a salt substitute.* This patient illustrates the danger of a rapid diuresis in the decompensated cardiorenal problem. The development of acidosis, increased nitrogen concentration with stupor might well have been accepted as a terminal uremic affair had not the laboratory clearly indicated the rapid changes going on within the patient so that prompt and vigorous dietetic and anti-diuretic adjustments could be made.

A third case demonstrates the chief dangers of a rapid diuresis in a girl, aged 19 years, weight 116, suffering with end-stage glomerular nephritis and edema. The renal function tests showed a fixed specific gravity, a dye excretion of 5% and 7%, and the blood urea nitrogen was 69 mgms. The blood phosphorus was 6.8

V. T., Age 19.

Date	Weight	Urea	CO_2	P.	
10/3	116	69.0	68.3	6.8	Diuresis
10/9	111	117.	37.2	7.85	Diuresis
10/13	106	140.	31.5	9.4	Diuresis
10/19	102	100.	47.5	7.0	Anti-diuresis
10/25	103	92.5	56.0	6.6	Anti-diuresis
11/1	103	63.8	52.3	6.8	Anti-diuresis

mgms. per 100 c.c. and the carbon dioxide was 68.3 volume %. The management consisted of a neutral ash, low sodium-high potassium diet. A dieuresis followed and as the retained minerals and waste products became more concentrated because of the poor renal clearance, the blood phosphorus and urea mounted rapidly to 9.4 and 140 mgms. respectively with a resultant acidosis and a uremic state. (See Table.) A quick shift to an alkaline ash, low phosphorus diet with calcium carbonate 10 grams daily together with 3 grams of sodium chloride on the food arrested the diuresis. Intravenous isotonic glucose solution 2000 c.c. daily for three days was given in addition to all the fluids that could be tolerated orally. An increase of the carbon dioxide, a drop in blood phosphorus and blood urea were associated with clinical improvement. (See Table 1.) A return in a few days to a diuretic regieme of a low sodium, low phorphorus, neutral ash diet with potassium chloride as a salt substitute resulted in a further diuresis and clearance of the waste products without again suffering the acidosis and uremic manifestations.

*The latter serves not only as a diuretic but as a fairly good salt substitute which renders a salt-free diet quite palatable. Too frequently prescribed and sorely needed diets are deserted because of a justified intolerance which thus may be avoided.

LOW PROTEIN-LOW PHOSPHORUS DIET

Calories 1600, P. 41, F. 61, Cho. 220, Phosphorous .63.

Note: All milk, eggs, cheese, milk soups, broths, excluded during the first stage diet No. I—in order to keep the protein down to 40.

EAT

Fruits: Both raw and cooked. Oranges, grapefruit, lemons, dried figs, apples, applesauce, apricot canned and dried, bananas, blackberries, cantaloupe, cherries, cranberries, dates, grapes, grape juice, lemon juice, olives (green stoned), peaches, pears, pineapple (fresh, juice and canned), plums, raisins, raspberries, strawberries, watermelon—4 large servings a day.

Vegetables: Asparagus, string beans, beets, cabbage, carrots, cauliflower, celery, corn, cucumbers, eggplant, hominy grits, kale, kohlrabi, lettuce, onions, green pepper, potatoes (white and sweet), pumpkin, radishes, rhubarb, rutabagas, spinach, squash, tomatoes, watercress—6 servings a day.

Cereals: Farina, cream of wheat, macaroni, rice, puffed wheat—2 servings daily.

Butter: May be taken ad lib—however for 1600 calories use the specified amount below.

Bread: White—6 slives a day.

Jelly: Added to raise the caloric intake.

Meat or fish (such as whitefish): 50 grams or approximately 1½ oz. daily.

Beverages: Weak coffee, weak tea.

Sugar: Allowable, but not calculated in this diet.

Sample Menu for one day.

Breakfast

Whole orange.
½ cup farina cooked in water.
2 slices white toast.
2 pats butter.
3 tbsp. cream.
2 tbsp. grape jelly.
Coffee.

Dinner

1½ oz. chicken—stewed.
½ cup potato.
½ cup string beans.
Lettuce and tomato salad.
1 banana.
2 slices bread.

2 pats butter.
Tea.
3 P. M.—Baked apple.

Supper

½ cup bld. rice.
Asparagus—7 stalks.
½ cup carrots.
Cole slaw.
2 slices bread.
2 pats butter.
Canned apricots.
2 tbsp. grape jelly.
Tea.

Fruits excluded because of high phosphorus would be: prunes and currants. Vegetables excluded for same reason: parsnips, mushrooms, lima, navy, and kidney beans.

Discussion.—With the present improved diuretic management made possible by the combined dietary, mineral and drug therapy, a great caution must be exercised in those cases of long standing cardiac, renal or renalvascular disease where the clearance of the large amount of waste products of protein metabolism, minerals and acid metabolites is embarrassed.

The great benefits derived from a physiologic diuresis can not be too greatly emphasized. Certainly, many patients with decompensated heart disease of long standing have been made comfortable and rehabilitated by a carefully continued diuretic regime. Sufferers of chronic nephritis with edema have been similarly benefitted over long periods of time. However, some cases are greatly endangered by the clearing of the edema from the body which is excreted faster than the materials in solution in it. This is especially true of waste products of protein metabolism and acid radicals have retained minerals such as phosphorus. The fact that drugs usually are quite evenly distributed through the body fluids make diuresis an element of danger in some cases. This is true of digitalis as illustrated in the first case so that the decrease or discontinuance of drugs early in diuresis may be desirable at times.

CONCLUSIONS

1. Dangers of rapid diuresis must be considered especially in the cases of long standing edema.

2. Those dangers are chiefly the result of the concentration of retained materials which result in a severe acidosis, uremic state or drug intoxication.

3. One must be alert to the urgent need for the control of diuresis by an active anti-diuretic plan as discussed above.

700 N. Michigan.

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DISCUSSION

Dr. Harry A. Durkin, Peoria: The old time clinicians had a dictum that the edematous patient never developed uremia. Moreover, they recognized the disturbances which might attend a too rapid removal of fluids by the then current measures of sweating and purgation. This was before the days of blood chemistry, and they had no way of finding what it was all about. Dr. Barker is one of the pioneers in the study of diuretics and this paper, which portrays so clearly the mechanism of dangerous diuresis, is a valuable and timely contribution. By emphasizing the changes which take place in the electrolyte pattern, it puts the entire problem on a rational basis and thus makes possible a more intelligent therapy.

The modern diuretic regime has reached such a surprising degree of effectiveness that both doctor and patient are often elated at the amount of water that can be lost. The warning contained in this paper may well temper our enthusiasm and caution us to proceed more deliberately. Naturally, the patient who presents definite evidence of kidney impairment is the most likely to get into difficulty. Cases of edema due to straight congestive failure get into trouble but rarely. I can recall a case seen years ago with congestive failure and anasarca, who was dehydrated with 40 grains of calomel. She developed acute headache, complete disorientation and collapse. She was quickly relieved by normal salt solution intravenously. Several others have shown exhaustion and mild circulatory collapse, and have responded to the same treatment. In these milder cases, it is possible that hemoconcentration takes place faster than fluid can be withdrawn from the intracellular spaces, with resultant peripheral failure. Because of these disturbing possibilities in the management of congestive failure, it is wise to digitalize first and await

results. If diuresis is not satisfactory, one can then proceed to the employment of the xanthine compounds, the mercurials, and the various salts of ammonium and potassium.

Closely related to this discussion is the occasional occurrence of acute dehydration and uremia in patients who are being treated by hypertonic solutions of various substances. I have indirect information of two deaths which occurred in patients who were being treated for B. proteus infections by using 25% sucrose. They developed excruciating headache, became annuric and died in typical uremia.

In conclusion I wish to thank Dr. Barker for bringing to our attention a subject which may become increasingly important during the present period of high powered diuretics and upon which the literature up to this time has been strangely silent.

Dr. M. Herbert Barker, Chicago (in closing): I am anxious to emphasize that we are talking chiefly about—as I am sure Dr. Durkin meant to mention—the renal-vascular group where renal function is poor. In my experience the ordinary congestive heart has not in any way been made worse by a diuresis and on the contrary it is greatly improved. However, if the patient happens to be an old hypertensive of long standing that has advanced to a degree of marked failure with chronic passive congestion of the kidneys, to wring him out rapidly is fraught with danger. Most patients are diuresed with great relief and that is the reason for the rapid acceptance for all types of this therapy. I am sure most students of heart disease are of the opinion that in order to maintain a weak or poor circulatory mechanism, diuresis and continued diuretic regimens are in order. In this way the patient is given many years of productive life, so it is a most comforting and life lengthening bit of therapy. However, there is a real danger in diuresing the longstanding cardio-renal vascular patient who has renal embarrassment as these case reports indicate.

METAPHEN INTRAVENOUSLY IN THE TREATMENT OF TULAREMIA

F. L. Barthelme, M. D.
Barthelme Clinic
Effingham, Illinois

Although the causative organism of tularemia was first isolated in 1912 by McCoy and Chapin, little progress was made for twenty-two years in the treatment of the clinical entity produced by the Pasteurella tularensis.

As one reviews the literature, scant information is obtained. Practically without exception all the standard works on treatment state that it can only be treated symptomatically. The results of symptomatic treatment were very poor. Though observations vary, I believe a conservative estimate is that approximately 10% of the cases proved fatal. It is noteworthy to state here that in the fatal cases about 50% had a very definite pneumonia. In making the statement a "very definite pneumonia," I have done so to bring out a point for further observation. In the series of sixty cases which have been observed, 65% revealed pulmonary findings if the disease had been present for ten days. This, I believe, is very plausible inasmuch as tularemia is a definite septicemia.

Until 1928, when I first used metaphen intravenously, iodides, mercurochrome and neoarsphenamine were tried. To me they altered the course very little except in three cases where iodides were used. In these three cases adenopathy did not last longer than two months.

I have not used quinine, which, according to Shelton, is beneficial, neither have I tried transfusion as first advocated by Alexander Bates of Louisville. One case was treated according to H. L. Baer, that is, by giving x-ray therapy: ½ unit unfiltered to the site of the ulcer. The patient stated the following day that the discomfort was much less at the site of the ulcer but inasmuch as metaphen was used in this case I can draw no conclusion.

Dr. Lee Foshay of the University of Cincinnati, in 1934, published his first report on the use of serum which he prepared from goats. The results obtained were far superior to any previous method of treatment. The duration of the disease was lessened from five to three months, the adenopathy from four to two and one-half months. The duration of the fever was unchanged and averaged approximately 26 days. However, after twenty-four hours the patient was very much relieved from the severe general aching and a sufficient drop in temperature was present to make the individual fairly comfortabe.

I have not personally used the serum prepared according to Dr. Foshay though he was very kind in sending some of the first that he prepared. My only reason for not using it was that I had six cases under treatment at that time and being naturally "sold," so to speak, on metaphen, I hesitated to change.

The series of sixty cases from which my ob-

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servations were made are all from Southern Illinois where the disease is prevalent. The cases were all proven by agglutination tests.

In this series no oculoglandular type was seen. Eight were of the typhoid type, four of the glandular and the remaining forty-eight ulceroglandular. One death occurred in this series, being a typhoid type. However, I attribute this death more to a poor diagnostic acumen than to the failure of metaphen. The young man who had this typhoid form was very religiously treated seven days for malaria; when metaphen was eventually used he improved slightly for four days.

In treating these cases I have given metaphen as follows: Mild cases—10 ccs of the 1-1000 solution intravenously every other day for three injections. In the more severe cases 10 ccs daily for four doses, then every other day for three more. In no case has more than 70 ccs of the solution been given. I, however, have no reason to believe that larger doses cannot be given in tularemia because in streptococcic infections I have used as much as 100 ccs in seven days without any noticeable harm, the urine being examined daily for any apparent kidney damage.

No general reactions were noted following its use, only one patient complained of discomfort at the time of injection. His description of the pain was almost identical to that given by patients when certain preparations are injected for intravenous urography.

Phlebitis almost invariably occurred at the site of injection. This is at times fairly painful for almost forty-eight hours. In some cases the same vein was injected four or five times but no permanent occlusion was noted.

The results of the series were as follows:

Mortality rate 1.7%.

Duration of fever not in any case exceeding ten days after treatment was begun except in one typhoid form where it persisted for 13 days. The average length of fever before and during treatment was eleven days.

The longest any adenopathy persisted was five weeks and the average was twenty-four days.

Duration of the disease, that is taking the time at which the individual was able to return to his former occupation without any discomfort averaged thirty-two days. The longest any patient remained away from work was seven weeks.

No glands were incised or excised.

After about four days the patients were much improved and analyses were discontinued.

The lesion, even if fairly large, was practically healed in two weeks.

CONCLUSIONS

1. Metaphen intravenously in a dilution of 1-1000 has been effective in the treatment of tularemia.
2. It has been without harmful results in the doses used and produced no general reaction.
3. Duration of fever was lessened to an average of eleven days.
4. Adenopathy has not averaged over twenty-four days.
5. Duration of disease averaged only thirty-two days.
6. No glands required incision.
7. Mortality 1.7%.

DISCUSSION

Dr. Samuel E. Munson, Springfield: I think that it is very important that Dr. Barthelme brought this paper to our attention in view of the fact that this is one of the newer diseases of the fever type that before we did not recognize. I think it is important that we should be tularemia-minded; in other words, if we do not keep it in mind in this area where the sources of infection are present all the time we may be overlooking the disease and losing an opportunity of probably saving many lives and preventing permanent disability.

As I had learned that Dr. Barthelme's paper dealt largely with the new treatment of tularemia and with the report of the large number of cases treated by a new remedy, I thought it necessary briefly to refresh our knowledge of tularemia with the early observations that brought about a knowledge of this, until a few years ago, entirely new disease. Martin, in correspondence in 1907, undoubtedly called attention to cases in Arizona, one of which in 1925 still showed the agglutinins for bacterium tularense in his blood. Wherry first isolated the bacterium occurring in an ophthalmic practice of Vail in 1914 and found the same organism in two rabbits found dead in nature. The identity of the human disease was recognized bacteriologically in the human being in 1919 in Utah, as deerfly fever and as the disease found in the plague-like disease of rodents occurring in California. McCoy and Chapin first discovered the causative organism, bacterium tularense, and in 1912 reported complement fixation and agglutination of the organisms by two human sera in their laboratory. Francis in 1919 recognized the bacteriologic identity of the human disease known in Utah as deerfly fever and the plague-like disease of rodents occurring in California and named the disease tularemia. The reports that are gradually increasing indicate that tularemia is probably worldwide in distribution. The in-

dependent investigation by O'Hara in Japan is now known to be tularemia.

Laboratory workers have acquired the disease in England and in 1928-29 over one thousand were recognized in the Union of Soviet Republics before laboratory workers paid the toll for their investigations, thus bringing the total number of laboratory infections to 24.

It has been demonstrated in Norway and Sweden, also in Ontario and British Columbia, that bacterium tularense is found in the snowshoe rabbit. A new source was discovered in the water-vole of Europe, which is hunted for its valuable fur. Wild rabbits no doubt constitute the most important reservoir of infection for other animals and man. New animal hosts and insect vectors have been discovered.

The addition of new sources of animal life and insects would indicate an increase in the instances of the disease in human beings.

Simpson has recently reported a case of oculoglandular type resulting in a man with contact with a woodchuck or groundhog; also from the skinning of possums, muskrats and fox squirrel. It is proven that the disease may be transmitted to domestic rabbits. McCoy and Chapin in studying the plague-like disease of rodents in California in 1911, attempted to infect five sheep with emulsions of spleen from guinea pigs which had died of the infection three of which were infected and two died.

In 1923 Public Health Service of Hamilton, Montana, learned of heavy losses of sheep in Montana and Idaho. These sheep were known to be heavily infested with wood ticks. Parker, associated with Francis and Spencer, demonstrated that the wood tick was a common host and transmitter of tularemia. Guinea pigs were injected with the blood of ticks removed from sick sheep. The ticks had fed on rabbits infected with tularemia. Ticks are capable of harboring the organism throughout the winter, as the eggs are known to be infected, and by transmitting the infection to the new tick are capable of infecting animal life in the spring.

The disease can be transmitted by contamination of the hands with the tissues of the crushed infected tick or with thick excrement while shearing or skinning sheep. Cases have been reported contracted by direct contact with the tissues of the hides of sheep.

The ulceroglandular type was transmitted to man by being bitten by a coyote pup. Three coyote pups were fed tissues of guinea pigs and Belgian rabbits just dead of tularemia and died in 13, 22 and 53 days respectively.

Further investigations have shown the following animals not to be susceptible to the disease: horse, cow, hog, fox, pigeon, domestic chicken and turkey. Grouse and partridge have been shown to have a high degree of susceptibility to the infection. The disease has been found, postmortem, in the lungs of human beings similar to the lesions in acutely fatal cases in the lymph nodes, spleen and liver.

According to the literature the death rate is about 4 to 7%.

In order that a high percentage of cases be recognized, physicians should be constantly tularemia-minded, particularly in localities where the disease is known to exist.

Some of the important points in the diagnostic establishment are the history of contact with wild rabbits, followed in two or three days by a development of an indolent ulcer, particularly at the site of any injury. Also the recognition of adenopathy in the region of the site first noticed, with involvement of the adjacent and deep glands.

The onset of the symptoms are flu-like in character and present evidence of tularemia.

The most common errors in diagnosis are the presumption of streptococcus or typhoid infection with these symptoms.

The symptoms manifested are headache, vomiting, chills, aching body pains, prostration, fever.

Francis, in his studies of 189 cases, reported three clinical types: 1. Ulceroglandular, the primary lesion being a papule and later an ulcer of the skin accompanied by enlargement of the regional lymph glands; 2. oculoglandular, the primary lesion being conjunctivitis, accompanied by enlargement of the lymph glands; 3. typhoidal, there being no lesion and no enlargement of the lymph glands. Out of 151 cases, 18 were of the oculoglandular type; 16 had skinned or dressed wild rabbits and two cases reported that they had removed foreign bodies from their eyes with their fingers while pulling ticks from horses. Of the 20 cases of typhoidal type, 18 were laboratory workers who had held infected rabbits or guinea pigs or handled infected ticks, or had helped with the necropsies of infected guinea pigs, rabbits or white mice.

Serum aggluntinins of tularemia will occasionally cross the agglutinins of brucella abortus, and thus the disease has been confused with undulant fever. The high titer reached by tularemia agglutinins will leave little doubt as to the diagnosis. The agglutinins appear some time during the second week of the sickness. It is useless to collect the blood during the first week or ten days. At the end of the first year the titer may reach 1:160, when acute 1:1280. One attack of the disease confers permanent immunity.

Foshay, of the Cincinnati General Hospital, developed an antiserum in 1930 and first used it clinically in November, 1931. Since that time all patients who have needed special therapy have used this antiserum where it is available. Since 1932, with the aid of O'Neill, he developed an antitularense horse serum which is equally potent as the goat serum, but has produced more serum sickness, the proportion being 40:60. In summing up the treatment with serum, Foshay states that the duration of the disease has been shortened by 50% and the duration of the disability by 50% with the duration of adenopathies 40%, the duration of fever not definitely altered; the bed-ridden or hospitalization time was lowered to 21 days and the incidence of suppurative adenitis cut to 45%. The mean duration of primary lesion was 32 days. Serum has been given from the first to the fourteenth day. The average time of injection is the 28th day of the disease.

In the treatment of 47 patients on or before the twelfth day, the incidence of suppuration of nodes was

38%, and the hospitalization and fever period was shortened to 20 days. This demonstrated that the earlier treated the better and the shorter the convalescent period. The optimal time for the serum therapy is before the twelfth day of the disease.

(Discussion Continued on Adv. Page 30)

RADIUM THERAPY OF CANCER OF THE ORAL CAVITY

H. E. Davis, M. D.
CHICAGO

"The problem of malignant disease is essentially one of cell metabolism. The malignant cell possesses the power of inexhaustible proliferation; its permeability to water and electrolytes is increased; the potassium content is raised and the calcium content lowered; the amount of cholesterin and phospholipins is altered. Fermentation leads to the production of lactic acid instead of glucose combustion and all cell activities have a direct dependence on or relation to the electronic state. In respect to the electronic state, malignant cells differ from the normal. The stability of the malignant cell is diminished and its electronic state can be more easily modified. Irradiation brings about a shifting of the electrons and this effect is probably the basis of all radium and x-ray therapy."

This excellent, brief statement made by Dr. H. B. Stallard of the characteristics of the malignant cell provides an explanation for the effect of irradiation and also provides the reasons for the limitations of irradiation therapy.

Radiation sensitivity depends upon factors such as the nature of the cells composing the malignant neoplasm, their metabolic rate, their degree and stage of mitosis, the stability of cell cytoplasm, the activity of cell ferments, the degree of vascularization, and the reaction of the surrounding tissues of the tumor bed. Sepsis apparently reduces radiation sensitivity. Inadequate irradiation increases the resistance of the cells to subsequent irradiation or, more likely, the cells remaining following inadequate irradiation are those which were originally more resistant. The stroma, blood and lymph supply is materially reduced by irradiation and for these reasons subsequent treatment produces a less favorable response.

This theory is now new. It has been well expressed by Dr. G. T. Pack, who states:

"It is definitely established that the cell during its course of existence passes through alternating phases of radiosensitivity and radioresistance. The cells are particularly radioresistant when for a long time they have been in a state of repose or rest. They are most sensitive to the action of radium or x-ray when they have been in a state of mitosis or indirect cell division. On account of the double alternating phenomenon of cell reproductive activity Regaud reasons that a short irradiation will destroy only those cells which at the moment are in a state of their maximal radiosensitivity. It spares others. On the contrary a longer irradiation for several days destroys all the mother cells successively, because, as the cycle of cellular renovation continues, each cell passes at some time into the phase of maximal sensitivity."

The selective action of gamma rays regularly causes complete local disappearance of some types of malignant tumors without causing any appreciable damage to normal tissues. In utilizing the selective action of gamma rays, it is probable that the state of mitosis is of prime importance. It is clinically and empirically apparent that small intensities of irradiation are effective at certain stages and in certain types, notably those cells undergoing rapid division. The period of irradiation should extend beyond the time of mitosis of the particular tumor cell. Our experience has indicated that irradiation beyond 12 to 14 days is less effective than irradiation up to 12 to 14 days. The reason for this decreased response is not known but is believed to be due in part to the decrease of the blood and lymph supply in the tumor bed as the result of radiation fibrosis. The mathematical probabilities of destroying a malignant cell are, therefore, markedly increased by having radiation continuously present in the tumor in malignancy lethal amounts during actual mitosis. Clinically this has been our experience and we feel that low intensities over a period of days are more effective.

Dosage expressed in milligram or millicurie hours alone is incomplete and inaccurate. We have attempted to express dosage in terms of milligram or millicurie hours per unit of tumor volume. Dosages do not directly follow the increase of tumor volume but decrease slightly as the tumor size increases, probably due to cross-irradiation from multiple sources. More accurate estimation of tumor dosage is desirable and has made more accurate measurement of the size of the tumor necessary. Of the fundamental methods of physical diagnosis inspection alone has been used too often in the mouth. Palpation has been neglected and consequently the extent of the induration beyond the ulceration has been underestimated.

Because of the relatively short distances at

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which radium is used exact physical ionization measurements are impractical. Consequently, we must rely on clinical measurements of dosage. From physical measurements we know that 1.0 millicurie of radon delivers approximately 133 millicurie hours of irradiation during its period of decay. We agree with other workers that 1.0 millicurie of radon during its period of decay delivers the equivalent of approximately 6 erythema doses to 1.0 cubic centimeter of tumor or to a point 0.5 centimeter from the source. Inasmuch as the terminal portion of the decay period of radon is of very low intensity, for practical purposes 120 millicurie hours of gamma irradiation may be considered 6 erythema doses. This amount of irradiation may be delivered by 10 milligrams of radium element in 12 hours or by 1.0 milligram radium in 120 hours. The effects are not quite equivalent as there is appreciable recovery from the initial radiation effect in 120 hours. Clinical experience teaches us that from 6 to 10 erythema doses of gamma irradiation are required for the complete destruction of most squamous cell carcinomata. From a given source the intensity of gamma irradiation is almost inversely proportional to the square of the distance from the source. The standard is given as "the minimum effective intensity which is produced at the surface of a sphere 1.0 centimeter in diameter by 1.0 milligram of radium placed at its center." For practical purposes but not for actual measurement gamma irradiation as used interstitially or in contact may be considered as coming from a line source corresponding to the length of the radium or radon container and effective for a distance of about 0.5 centimeter. 120 to 200 milligram or millicurie hours of gamma irradiation will deliver approximately 6 to 10 skin erythema doses.

Preliminary external irradiation in all oral cavity lesions is of utmost importance. Two erythema doses are usually given, either by means of radium pack or 1400 r units of x-radiation from 200 KV over a period of 4 to 6 days. Following this treatment inflammatory changes, which are always present, appear to subside. It is felt that the changing of a progressive lesion to a regressive one produces a condition more favorable for interstitial treatment.

With the exception of a few locations, such as the alveolar ridge, interstitial irradiation is the method of choice for the treatment of oral cancer. Ordinarily these lesions are more than 0.3 centimeter thick and surface or contact irradiation has insufficient penetrating power to thoroughly eradicate them. Furthermore, because of the inverse square law we are able to deliver irradiation directly into the tumor area and less irradiation to the surrounding tissues. Radium element, either in the form of needles or implants, has the advantage over radon in that there is a constant intensity of irradiation.

We ordinarily use radium needles of low linear intensity; 0.5 to 1.0 milligram per linear centimeter. They are screened with 0.5 millimeter of platinum, thus allowing the use of only the pure gamma rays. Needles with as great an active length as is practical are more desirable in order to insure uniform distribution of the irradiation. The needles are spaced accurately about 10 to 12 millimeters apart throughout the involved area. The period of application varies from 4 to 12 days continuously, depending upon the location, extent, and probable histology of the primary tumor.

In certain locations radon implants are more practical and allow greater flexibility of technique. The disadvantages of unscreened radon implants have been overcome by the use of 0.3 and 0.5 millimeter gold screen. In general 1.0 to 1.5 millicuries of radon per cubic centimeter of tumor have been found to be effective for complete destruction. The dosage tables reported by Drs. Martin, Quimby and Pack have been found effective and invaluable. The accurate distribution of radon in small implants requires great care and is more difficult than the spacing of radium needles.

A normal reaction is characterized by an appreciable change in the lesion about ten days following treatment. The lesion will have become flattened and for a variable distance of 1.0 to 2.0 centimeters around it the mucosa will be covered by an adherent greenish-yellow fibrinous deposit. The induration will be decreased and the maximum reaction will be apparent between the 14th to 18th day. In 6 to 8 weeks there will be little or no trace of the original lesion and mobility will have returned almost to normal. Necrosis of the bone sometimes occurs when a lesion lies over or near bone. The malignant ulceration usually allows infection to invade bone and sequestration naturally follows. Direct extension into bone by squamous cell lesions of the

oral mucosa is extremely uncommon. If direct extension occurs, irradiation does not offer a favorable prognosis.

An abnormal reaction is produced either by under- or over-treatment of the lesion. Under-treatment is characterized by persistent induration although the ulceration may have disappeared. Over-treatment in mild degrees is marked by the persistence of fibrinous deposit. Gross degrees of over-treatment produce ulceration and the surrounding tissues often become edematous and of "woody induration." A tough adherent green slough may remain over the base of the ulcer. Occasionally second treatments are administered after the tumor seems to be incompletely destroyed by the first irradiation. Thus the tumor is over-irradiated and may lead to radium necrosis, which often presents a difficult problem. The condition becomes accentuated by over-treatment and the indolent ulcer which is extremely tender and painful may take from 8 to 12 months to heal. A depressed scar may result causing retraction of surrounding tissues and if in the tongue, there may be limitation of mobility. It is usually best to wait at least 12 weeks before instituting second treatment unless the lesion is positively progressing.

In cancer of the tongue radon is preferred because the presence of needles in such a more or less constantly moving organ produces considerable pain and discomfort. The presence of small foreign bodies in such a highly vascular organ seldom causes any difficulty.

Floor of the mouth lesions are satisfactorily treated with radium element needles in the anterior third of the mouth. In this location the lesion may be very superficial and less than 1.0 centimeter thick. In such instances contact irradiation is satisfactorily used by means of low content platinum screened containers imbedded in modeling compound. Radon implants are more adaptable in the posterior two-thirds of the mouth, particularly as the tongue is usually involved.

Lesions of the alveolar ridge and hard palate are treated by contact irradiation. Because the lesions in this location are usually thin and in close contact with bone interstitial irradiation is usually unnecessary and is contraindicated. Special molds, constructed of dental modeling compound in such a manner as to conform to the area of treatment and imbedded with low content platinum screened radium containers, are preferable. These applicators are designed for 4 to 5 day applications. Opposing structures are displaced from the radium by an additional thickness of modeling compound. The distance as a means of protection is more effective than 1.0 millimeter of lead which absorbs only 4% of gamma irradiation. The molds may be removed during meals. A two-tailed mandibular bandage retains the applicator in position easily and accurately, especially during the night. Removal of carious teeth should usually be delayed until after the control of the primary lesion, unless the lesion extends along the alveolar ridge between the teeth.

Soft palate lesions present difficulties in treatment because of the slight amount of tissue and the sensitivity prevents the use of the contact mold. Removable needles are usually preferred although radon is often satisfactory.

Lesions of the tonsil and fauces are preferably treated by radon following preliminary external irradiation. Malignancies in this location are frequently undifferentiated cells and are highly sensitive to radiation.

Lip lesions involving two-thirds or more of the lip are less satisfactorily treated as plastic repair is usually desirable after control of the primary lesion. Extensive destruction has usually taken place in large lesions and constitutes a disability. Skin grafting is less successful after radium therapy because of reduced blood and lymph circulation produced by radiation fibrosis. In patients of advanced years or where surgery is constitutionally contraindicated, interstitial radium is effective. Small lesions are effectively treated by the use of interstitial removable radium needles. The gold of the radon seeds is less well tolerated in the lip than in the tongue.

Buccal mucosa lesions are effectively destroyed by removable radium needles. Small islands of incomplete destruction or local recurrences are well treated with radon implants.

In our experience submaxillary and cervical node involvement may occur following treatment of the primary lesion without recurrence at the primary site, whether prophylactic neck irradiation has been given or not. As has already been stated 6 to 10 skin erythema doses are usually necessary for the complete destruction of a primary lesion of the oral cavity and since the tolerance of the skin of the neck is about 2.5

to 3.0 skin erythema doses, it is not usual that a cervical node can be completely destroyed by external irradiation alone. This has been our experience. However, because of the possibility that an occasional individual lesion may be radiation sensitive, neck radiation is usually given, whether glands are palpable or not. When glands are palpable and operable and when the constitutional condition of the patient warrants surgery, block dissection of the glands of the neck is done. Any questionable incomplete removal of the glands is then given interstitial irradiation. Interstitial irradiation of inoperable glands, those which are fixed, infiltrating and usually invading the carotid sheath, has not been entirely satisfactory. External irradiation alone seems to be palliative and inhibitory in effect. Methods for the complete control and destruction of neck metastases are still to be developed.

The remarks made in this paper have been confined to statements regarding our attempts to completely control and destroy malignancy in the oral cavity. The many valuable surgical and radiation measures for palliation and inhibition of malignancy have not been discussed. The experience in our Clinic has substantiated the statements made by other Clinics that the combined efforts of the pathologist, the surgeon and the radiologist are necessary for the successful treatment of malignancy of the oral cavity.

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DISCUSSION

E. G. C. Williams (Danville, Ill.): I did not have an opportunity to review the Doctor's paper previous to the opening of the meeting, so I cannot go into details but shall cover just a few points. I believe the Doctor's last statement that the future and the hope in this work is the cooperation of the surgeon, the pathologist and the radiologist is well taken. Without that we are not going to make much progress.

I shall pick a few statements at random. One is that inflammation increases the resistance to irradiation. We will find that right along and do not know whether these cells naturally become toughened to all irritants, due to their reaction to inflammation, but the fact exists that with inflammatory masses they are more resistant than otherwise.

It is a difficult matter to keep the irradiation up during the time of mitosis, because it would be difficult to suppose that all the cells of the mass are undergoing mitosis at the same time. So it is only by covering periods that would include mitosis of the greater bulk of the cells that one could hope to accomplish a mytotic cycle of irradiation.

For Dr. Davis or any one using radium to give dosage to another person is extremely difficult, because, as yet, we have no absolute method of measuring dosage such as the roentgen unit used with x-ray, and it again emphasizes the idea that it is only through definite experience that a man is really in position to be estimating dosage for himself. This is just one more point of objection to the indiscriminate renting of radium. So far, of course, the program is young. But we hear thus far the mention of use of radium and the 200,000 volt irradiation. I am not hearing much today of experiences with 400,000 and higher voltage of x-ray.

I enjoyed thoroughly the Dctor's paper and his experience.

Alexander Brunschwig (University of Chicago): In regard to the question of sensitivity during mitosis, there is appearing in the biologic literature now or will appear, I understand, work in which it is shown that colchicum, which has been used for many years to treat gout, is capable in the animal of stopping a cell in the metaphase of mitosis for a period of twelve hours, more or less. If that is so and if that can be carried over into the higher animals, we might have some way of having more cells in the mitotic phase at any given time by the use of this drug. I do not know whether any experiments have been done on experimental cancer.

SCARLET FEVER AND ITS COMPLICATIONS

A statistical study of 783 cases of scarlet fever in school children one year after an epidemic.

E. H. QUANDT, M. D.
ROCKFORD, ILLINOIS

"Scarlet fever, on the whole, is itself a relatively mild disease and it is chiefly through its complications that it exerts anything more than a temporary effect." This expresses the present day opinion on a common childhood disease. With this as a thesis I have undertaken to examine, one year after a severe epidemic of scarlet fever, all the school children in Rockford who had the disease during the epidemic of 1934-35, to determine what complications and sequelae developed as a result of the illness.

From September, 1934, to June, 1935, the

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Rockford City Health Department had recorded and placed in quarantine 1071 cases of scarlet fever. Of this number, 766 were recorded in children of school age. During the same period, five deaths in the city were recorded as due to scarlet fever; all of them in the school population, four children and one teacher. One additional child has since died of nephritis and its complications following scarlet fever and one child has dropped out of school because of recurrent severe attacks of pyelitis following scarlet fever. The school population consisted of 14,976 students of which 7,338 were boys and 7,638 were girls plus approximately 450 teachers. Of the students who developed scarlet fever 408 were boys and 375 were girls. This gives an incidence of scarlet fever of 5.2%; 73% of all cases occurring in children of school age.

This paper will be limited to a statistical study of the after effects of scarlet fever in a group of 783 school children. A careful physical examination was done under school conditions to determine in each case the state of nutrition, condition of the upper respiratory tract, signs of anemia, middle ear infections, condition of the eyes, and evidence of damage to the heart. No attempt was made to determine the presence or absence of kidney lesions.

The following charts and graphs indicate, at a glance, certain facts about the epidemic.



Fig. 1. Duration and severity of epidemic.

It will be noted that the epidemic started slowly in the first three months of the school year, rose rapidly to a peak in April and then subsided. The epidemic was predicted by the City Health Department, one year prior, on the basis of previous epidemics of scarlet fever recurring every seven years in this community.

The relatively low incidence in the age six group may be accounted for on the fact that these children were not in the school system during the epidemic. It will be noted from this graph that the incidence of the disease falls rapidly after the age of 12.

Of the total group of scarlet fever cases, 299,

or 37%, have had a tonsillectomy performed before or since the epidemic. Ninety-five or 12.5% revealed definite evidence of chronic infection in the tonsils. Twenty-seven or 3.5% had hypertrophied tonsils. Fifty or 6.4% had a rather marked cervical adenopathy. Five were mouth breathers with the typical adenoid facies. Eleven or 1.4% of all cases have come to wear glasses

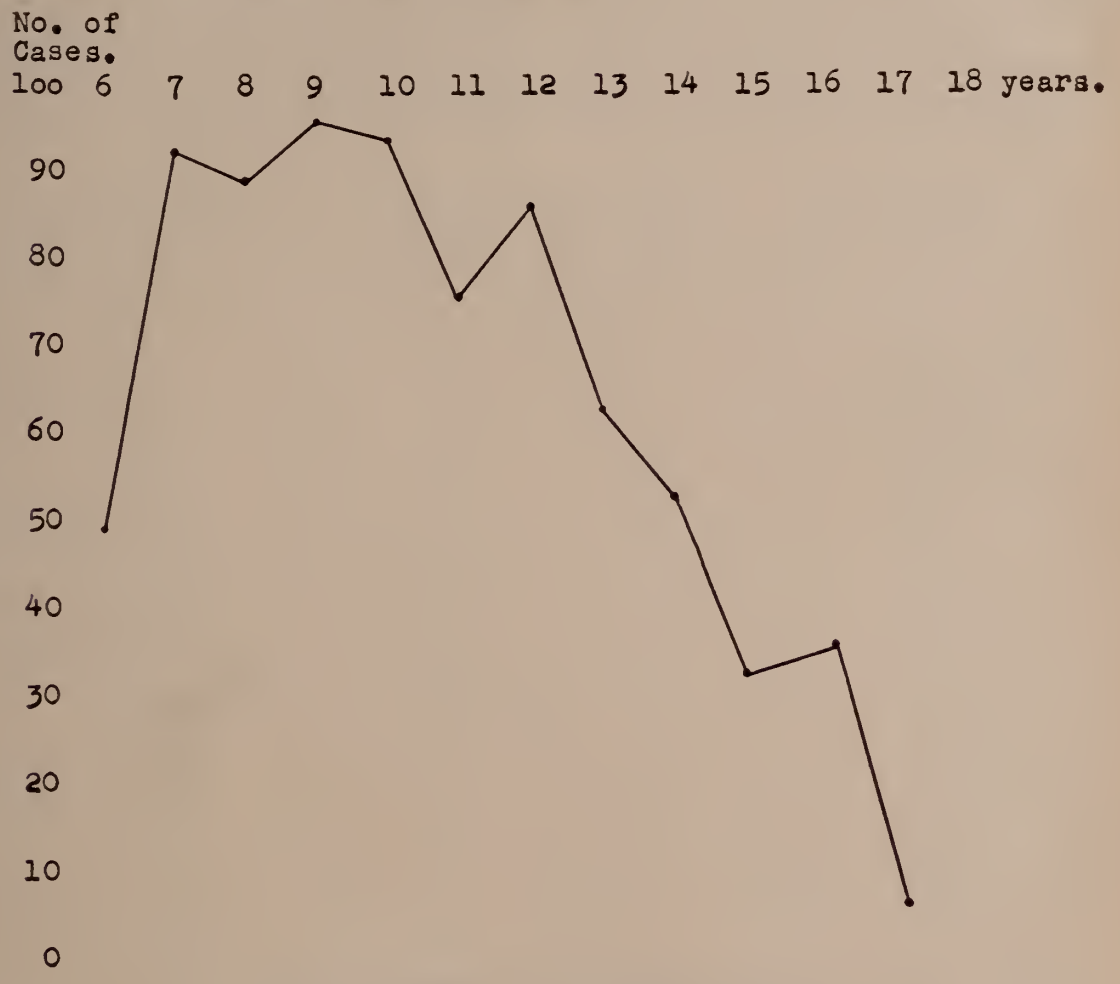


Fig. 2. Distribution of scarlet fever according to age.

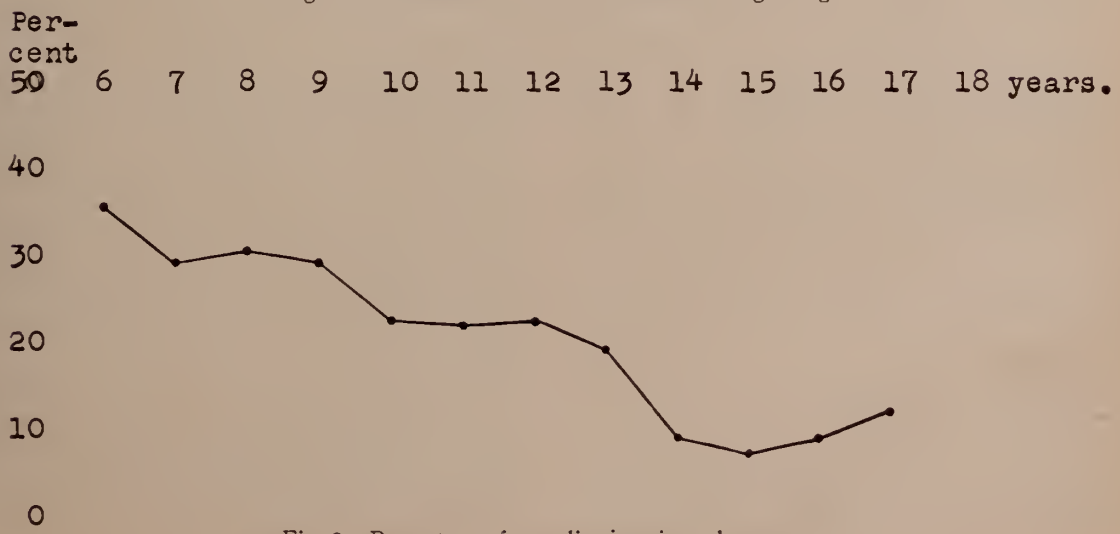


Fig. 3. Percentage of complications in each age group.

since having had scarlet fever. Thirteen or 1.6% present objective signs of secondary anemia. Twelve or 1.5% were undernourished, and an equal number had a definite nervous makeup with habit spasms, involuntary twitchings, etc. Five hundred eighty-nine or 75% had had no complications and have no sequelae. It is to be noted that the complications curve is markedly downwards as the age increases. The incidence of the disease in the older group is too small for the percentage figures to be reliable.

Abrams and Friedman show a higher incidence of otitis media in the male sex, whereas, our findings are the reverse. On the other hand, our figures agree to a slightly higher percentage of otitis media in the right as compared to the left ear. These figures also agree with Williams, that in about a third of the cases of ear complications, the disease is bilateral. This chart further reveals that 65% of the cases of otitis media occur between the ages of 6 to 10; 33% during the next five year age group and 2% after the age of 15. No cases of acute mastoiditis were recorded. Sutliff gives a total incidence of otitis media in scarlet fever as 11.3% which is closely parallel to these findings of 12%. Eleven or 11.7% of those who had acute otitis media have developed a state of chronic otorrhea, impaired hearing or both.

Age	Total Cases of Scarlet.	Total Cases with Comp. and Sequelae.		Tonsillectomized Pupils
6	50	20 cases	40 percent	10
7	94	30 "	32 "	26
8	89	30 "	34 "	26
9	100	32 "	32 "	32
10	99	23 "	23 "	28
11	75	17 "	22 "	39
12	91	22 "	24 "	36
13	62	12 "	19 "	36
14	55	4 "	7 "	35
15	28	1 "	3 "	12
16	32	2 "	6 "	16
17	8	1 "	12 "	3
Total	783	194 "	24 "	299

Fig. 4. Total complications and tonsillectomies in each age group.

SCARLET FEVER AND THE MIDDLE EAR

Age	Scarlet cases	Otitis Media	Males	Females	Rt. Ear	Lt. Ear	Bilateral
6	50	8	4	4	5	2	1
7	94	11	6	5	4	3	4
8	89	16	7	9	5	7	4
9	100	14	9	5	6	3	5
10	99	12	5	7	2	5	5
11	75	8	2	6	2	3	3
12	91	10	1	9	4	2	4
13	62	6	4	2	3	1	2
14	55	7	1	6	1	1	5
15	28	0	0	0	0	0	0
16	32	2	0	2	1	1	0
17	8	0	0	0	0	0	0
Totals	783	94	39	55	33	28	33
Percentage		12	41	59	35	30	35

Cardiac defects were found in all age groups except age 15. There were 28 cases or an incidence of heart complications following scarlet fever of 3.6 percent. Of these, 15 were found in

State Medical Society, at Peoria, May 19, 1937.

girls and 13 in boys. No attempt was made to establish an accurate diagnosis of the particular lesion. Th examiner satisfied himself, however, that a definite cardiac abnormality was present, and in all cases the pulse rate was recorded after a period of rest. In 11 cases a systolic murmur was found at the apex. In 14 cases the heart sounds were markedly accentuated above normal. The pulse rates varied from 84 to 140. No blood pressure readings were taken. One case of aortic stenosis is suspected but not established. The above table records some of the objective heart findings.

OBJECTIVE FINDINGS IN THE HEART CASE

Age	Sex	Rate	Murmur	Location	Transmission	Sounds	Remarks
6	F	96	mild systolic	apex	axilla		
7	M	92	soft systolic			Accentuated	Irregular
	M	92			axilla		
	M	124	systolic	apex	axilla		
	F	128	systolic	apex		Accentuated	Irregular
8	M	120			axilla		
	M	84	systolic	apex		Accentuated	
	F	140			axilla		
9	F	126	systolic	apex		Accentuated	Irregular
10	M	140				Accentuated	
	M	96	systolic	apex	axilla		
	M	124				Accentuated	
	F	84				Accentuated	Irregular
	F	116	systolic	aortic	sternum		
11	M	112				Accentuated	
	M	100				Reduplication	Precordial activity
	F	120				Reduplication	Irregular
12	F	114				Accentuated	Precordial activity
	F	108				Accentuated	Irregular
	F	92				Accentuated	Irregular
	F	96	systolic	apex	axilla		
13	F	104				Accentuated	Irregular
14	M	90	to and fro	apex			
	M	96	systolic	apex		Accentuated	Precordial activity
	M	84				Reduplication	Irregular
	F	108				Accentuated	Irregular
16	F	120				Accentuated	Irregular
17	F	116	systolic	apex	axilla		

This figure shows the distribution of 347 defects in 194 students with complications and sequelae following scarlet fever. The middle ear was affected in 94, the heart in 28, secondary anemia in 13, nervous system in 12, nutrition in 12, and upper respiratory in 127 cases. The latter were subdivided as follows: Infected tonsils, 95; mouth breathers, 5; hypertrophied tonsils, 27; and marked cervical adenopathy, 50.

Immunity studies, made in four representative schools of the system, revealed the following interesting facts:

P. R. Walker School—enrollment—482

8 per cent. (40 children) had scarlet prior to epidemic.
20 per cent. (96 children) immunized prior to epidemic.
3 per cent. (15 children) developed scarlet during epidemic.

O. F. Barbour School—enrollment—359

1.6 per cent. (6 children) had scarlet prior to epidemic.
11 per cent. (41 children) immunized prior to epidemic.
9 per cent. (35 children) developed scarlet during epidemic.

P. A. Peterson School—enrollment—332

13 per cent. (44 children) had scarlet prior to epidemic.
5 per cent. (16 children) immunized prior to epidemic.
14 per cent. (49 children) developed scarlet during epidemic.

Kishwaukee School—enrollment—460

7 per cent. (35 children) had scarlet prior to epidemic.
8 per cent. (39 children) were immunized prior to epidemic.
16 per cent. (73 children) developed scarlet during epidemic.

No cases of scarlet fever, developing in a child immunized against the disease prior to the epidemic, has come to my attention in this study. P. R. Walker School, with 28% of the children immune prior to the epidemic, had the lowest incidence of cases.

CONCLUSIONS

A statistical study of 783 cases of scarlet fever in the school system was made one year after an epidemic.

Twenty four per cent. of all cases were found

to have developed one or more complications or sequelae.

Infections of the middle ear are the most common immediate complication.

Damage to the heart is the most common permanent complication.

The school with the highest percentage of immune children prior to the epidemic had the lowest incidence of cases.

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Miss Ida Dawes, R.N.,
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Miss Marian Dagnan, R.N.,
Miss Nellie Hanstrom, R.N., and,
Miss Helen Wray.

SOME ROENTGEN CONSIDERATIONS OF THE CHILDHOOD TYPE OF TUBERCULOSIS

EARL E. BARTH, M.D.

CHICAGO

The term, childhood type of tuberculosis, has been adopted by the National Tuberculosis Association to describe the diffuse or circumscribed lesions in the lungs and associated tracheobronchial lymph nodes that result from a first infection of the pulmonary tissue with the tubercle bacillus. The adult type of tuberculosis results from reinfection. If the adult escaped infection during childhood, he may develop the childhood type. The child may develop the adult type if reinfected after the immune phenomena produced by the first infection has occurred.

Chadwick,[1] McPhedran[2] and others have repeatedly stressed the importance of having a knowledge of the anatomy and physiology of the lungs as well as the pathology of tuberculosis if one is to properly interpret films of the chest of the child. In a favorable case the implantation of tubercle bacilli in the lung results in the formation of tubercles. An exudative process develops around this focus and may vary in size from that of a miliary lesion to the involvement of an entire lobe depending upon tissue sensitivity and the number and virulence of the bacilli. Central caseation occurs early with the formation of a fibrous capsule around the lesion. Later resorption occurs during which time the focus decreases in size and still later calcium or, in some instances, true bone may be deposited in the lesion. A similar sequence of events occurs almost simultaneously in the lymph nodes which drain the involved area. In the unfavorable cases the tissue reaction may be so intense that necrosis and liquefaction occurs with the formation of a cavity or the process may spread to the surrounding lung. A hematogenous dissemination may occur with the development of miliary tuberculosis, meningitis, or involvement of bones and joints. The roentgen findings will vary with the extent, severity, location and phase of the disease.

The diagnosis of the childhood type of tuberculosis depends upon a consideration and correlation of the history, symptoms, physical signs, tuberculin test, x-ray and laboratory tests. The roentgenologist should be informed of these various factors.

The history of exposure to a case of pulmonary tuberculosis is most important. The symptoms are frequently indefinite and the child may not manifest any symptoms which can be attributed to the disease. There may or may not be a loss of weight. Tuberculosis may be found in overweight, average weight, or under-weight children. There may be a loss of appetite, lassitude, horseness, cough, or irritability. Frequently no abnormality of the temperture is found.

Unless a diffuse infiltration or consolidation of the parenchyma is present, there may be no particularly abnormal physical findings. Goldberg[3] in speaking of childhood tuberculosis states that ". . . years of experience have led me to rather underestimate the importance of physical findings."

It is generally accepted that a positive reaction to the tuberculin test always means infection with tubercle bacilli. It does not necessarily indicate disease or whether it is active or latent. A negative reaction will be a great aid in ruling out questionable roentgen findings.

In most instances it is very difficult to recover tubercle bacilli in children. The sputum

From the Department of Radiology, Northwestern University Medical School. This is a brief summary in the way of a preliminary communication on work in progress at the present time.

Read before Section on Radiology of Illinois State Medical Society, Peoria, May 19, 1937.

may be positive in those who have cavities or the pneumonic type of lesion. The gastric contents and swabbings of the pharynx and larynx may sometimes yield positive results.

The importance of a roentgen study of the chest as an aid to the diagnosis of childhood tuberculosis has been emphasized by practically all authorities. (Chadwick,[4] McPhedran[2]) Chadwick[4] states, "X-ray films are indispensable in the examination of a child's chest. Without them a conclusive diagnosis of the childhood type of tuberculosis can rarely be made." We are indebted to McPhedran[2] for a satisfactory working classification.

Most of us have probably been guilty of seeing too much in the roentgenogram of the chest at some time or other. Osler[5] once said, "More than any others, radiographers need the salutory lessons of the dead house to correct their visionary interpretations of shadows, particularly those radiating from the roots of the lungs." The excellent work of Bigler[6] based on observations at necropsy has done much to give us a correct concept of the normal. Numerous factors must be considered in the study of a chest film. Among these, one may mention the phase of respiration and of the cardiac cycle, technical factors such as target-film distance, the focal spot of the tube and proper development of the film. Technically good films are frequently very difficult to procure when one is dealing with children. Adequate films will show sharply defined hilar shadows with rather clear-cut linear or vascular markings extending into the lung fields. Bigler has stressed the fact that the normal linear markings are made up, for the greater part, of the blood in the blood vessels. Frequently these vessels run parallel with the axial ray or will curve and will produce sharply rounded or ovoid shadows which should not be misinterpreted as evidence of pathology such as calcium deposits.

Two groups of lesions are peculiar to the childhood type of tuberculosis: the parenchymal and the tracheobronchial. Both types of lesions are frequently noted in the same chest. The parenchymal lesion may occur in any part of the lung but in our experience has occurred most frequently in the lower two-thirds. These lesions may be either circumscribed or diffuse. The diffuse lesions may become very extensive involving a part of, or an entire lobe and have the appearance of pneumonia. The term epituberculosis has been applied to these diffuse lesions by Eliasberg and Neuland[7] and by Kolzer.[8] These pneumonic appearing lesions have been noted to come and go but usually the primary focus persists throughout the serial film study. The importance of serial films cannot be stressed too strongly. If a questionable lesion is present in the roentgenogram, a re-examination after a period of two to four weeks should be urged. After a positive diagnosis of childhood tuberculosis has been made, a roentgen study at intervals of one to three months will provide definite information as to the status of the lesion. The persistence of a parenchymal lesion in the serial films of a child's chest who has a positive tuberculin reaction is sufficient evidence to warrant a diagnosis of the childhood type of tuberculosis. The absence of any abnormal findings in the chest film of a child having a positive tuberculin reaction does not of course rule out tuberculosis. On the other hand the roentgen examination in many cases will reveal definite and often extensive lesions which are not discovered by clinical examination.

As resolution takes place the lesion becomes more discreet, smaller, and may be represented by only a small nodule often followed later by deposits of calcium and in some instances true bone. Calcium deposits which are visible in the film usually require from one to three years to develop. These deposits occur somewhat more slowly in white than in colored children. The presence of calcium deposits in the chest of the child is much more important than in the adult chest. These deposits in the lungs of children can be considered as being on a tuberculous basis in practically all cases because it occurs so rarely from other causes. While the presence of calcium may be taken as evidence of healing, it does not signify that the lesion is healed. Calcification and caseation may occur in the same focus. Many authorities consider calcifying lesions a menace up until the age of twenty years or adult life.

Normal lymph nodes do not cast shadows which can be visualized in a roentgenogram. Perceptible lesions of lymph nodes in children are usually on a tuberculous basis. These nodes may be so large that they protrude beyond the normal hilar area and are visible as rounded dense shadows outlined because of their great density as compared to the lung tissue. This finding is noted most frequently in negroes, Mexicans and In-

dians. In other cases one sees a triangular shadow with the apex extending into the lung field. Shadows of this type may be either hemogenous or have a hazy mottled appearance. Considerable care must be exercised in the interpretation of hilar shadows. Blood vessels which run parallel with the axial ray cast shadows which have the density of calcium. These vascular shadows have a rounded, smooth contour while calcium deposits are prone to have rough, irregular contours. Movement accounts for most of the diffuse, ill-defined, broadened and blunted hilar shadows. Either active or previous infections may alter the normal hilar appearance. Loss of the usual clear space between the right hilum and the right border of the heart mentioned by Baum[9] is important in determining the presence of hilar pathology. If paratracheal glands are involved there will often be widening of the mediastinum either unilaterally or bilaterally. The borders may be perfectly smooth or nodular, and may be either straight or bulging.

The density of the shadows cast by these diseased nodes will be increased considerably as calcification takes place. The recognition of calcium deposits in the lymph nodes as in the lung, is very important in the child.

The tracheobronchial lymph node involvement may be so extensive that there will be sufficient extrinsic pressure on the bronchus to produce atelectasis of a part or of an entire lobe. In other instances the obstruction of the bronchus may not be complete and obstructive emphysema will occur. Faust[10] and others have reported cases of this type.

Pleural effusion is not uncommon in children and if no other cause is known, it probably should be considered to be on a tuberculous basis. The roentgen findings are usually characteristic and not unlike those noted in the adult.

CONCLUSIONS:

1. The proper interpretation of a roentgenogram of the chest of a child having tuberculosis requires a knowledge of the pathology as well as of the anatomy and physiology of the lung.

2. A roentgen study of the chest is indispensable in the examination of a child suspected of having tuberculosis.

3. The physician who interprets the films should have or be given a statement regarding the history, physical findings and the result of the tuberculin test if available.

4. Serial films will yield more definite information than a single examination and will help to rule out non-tuberculous lesions.

5. Two types of lesion should be looked for: the parenchymal and the tracheobronchial. Pleural effusion, atelectasis, and obstructive emphysema will be found in some instances.

4215 N. Paulina Street.

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DISCUSSION

Paul Holinger (University of Illinois, Chicago): This paper has been extremely interesting to me because of the phases of bronchial obstruction which were discussed. Especially the last case, in which definite bronchoscopic findings were noted.

I should like to mention a case which falls into the scope of this paper, and is somewhat similar to the last case Dr. Barth described. A child two years of age who had Pott's disease developed atelectasis of the right lower and middle lobes. She was placed on a Bradford frame and bronchoscoped in spite of the Pott's disease.

The right bronchus was found to be filled with granulation tissue and pus. The tissue contained tubercles and the secretion contained the bacilli. Thus, it was proven that the atelectasis was caused by tuberculous granulation tissue, a rather uncommon cause of bronchial obstruction in children, which roentgenologically cannot be distinguished from bronchial obstruction caused by extrabronchial compression.

THREE INTERESTING INTRAOCULAR TUMORS (MALIGNANT MELANOMATA)

M. L. Ostrom, M. D.
ROCK ISLAND, ILL.

This study has been unusually interesting to myself and my associate, my father. The three cases to be presented were undergoing care at the same time, and a rare opportunity for discussion, comparison and study was thus made possible to us. Before entering the discussion, it would be well to state that the time allotted will not permit a lengthy discussion of the subject to be reviewed, hence an attempt will be made to condense the subject matter to a minimum. Reviewing briefly the salient features apropos tumors of the uveal tract we find:



Fig. 1a. Case 1. Melanosarcoma. Spindle cell, subtype B, choroid.

Most intraocular tumors are malignant;[1] however, from a survey of ophthalmic literature,[2] benign melanomas are much more common than it appears. On histological investigation of eyes with and without sarcomas, it was found that five separate melanomas occurred in fifty sarcomatous eyes and twelve melanomas occurred in fifty non-sarcomatous eyes.[3] Norman quotes Castresanas (Siglo Medico, Madrid) incidence of intraocular melanomata as being one to 20,000 primary eye cases and Gifner (Pathologist at Mayo clinic) 1:25,000 primary eye cases. It is interesting sidelight to have the statistics of the Mayo Clinic reveal 1:152,651 run of the mill patients affected with melanosarcoma an incidence of approximately 1/100 of 1%.

Primary malignant melanoma or so-called sarcoma of the uveal tract is rare. According to Fuchs, 6% of all malignant melanomata involving the uveal tract are found in the iris; 9% are found in the ciliary body and 85% in the choroid.[5] Concerning the site of preference of the tumor Francois[6] found a preference in the iris.

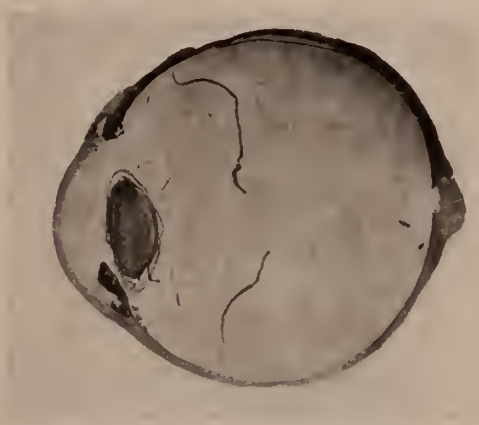


Fig. 2a. Case 2. Malignant melanoma. Spindle cell, subtype B, iris. Secondary glaucoma.

It is generally agreed when a tumor is seen in the vitreous chamber of a human eye, the eye should be removed.[7] Fuchs[8] states: "Eyes which contain a new growth, or which are both blind and painful, require enucleation." Hardy & Hardy[9] conclude that the more anterior the growth, the better the prognosis; however, Samuels[14] concludes that "tumors that reach the angle are particularly dangerous to life because of their tendency to invade Schlemm's canal and the anterior ciliary vessels. The original classification of melanomata by cell type, based on H & E staining still holds,[10] but a more accurate prognosis is made possible by additional classification according to fibre content. An



Fig. 3a. Case 3. Malignant melanoma of the choroid, mixed cell, subtype A and B. Detachment of the retina. Secondary glaucoma. Recent intraocular hemorrhage.

Read before Section of Eye, Ear, Nose and Throat, Illinois State Medical Society, Peoria, May 19, 1937.

abundance of fibre production indicates a more favorable prognosis and a decrease in fibre production denotes an increase in malignancy.[11] The prognosis as regards life is grave. In the great majority of cases, the patient with metastases succumbs to their effects within three years from the date of enucleation of the eye.[12] VonHipple has seen metastases as late as 18 years after enucleation.

The diagnosis of tumors of the uveal tract is seldom made without difficulty. In the first place, four stages of growth are distinctly recognized [1, 15, 16], each stage presenting difficulties characteristic of itself.

In the first stage, the tumor grows without apparent irritation. In the 2nd stage, a secondary glaucoma is recognized by increased tension. In the 3rd stage, there is a continual growth of the tumor and rupture of the globe. In the 4th stage, the growth becomes extra-bulbar and there is an increased opportunity for metastases.

In the early case the retina lies in contact with the tumor so that with an ophthalmoscope a sharply defined detachment of the retina is found rising steeply from the fundus. Through this detachment we can occasionally recognize the yellow or brown color of the tumor. Occasionally a red border of the tumor mass presents itself next to the optic nerve due the engorgement of the choroidal vessels. If a tumor should arise in the ciliary body or near it, it may be difficult to see although easy to transluminate.[1] Cataract, exudative choroiditis, hemorrhagic glaucoma, corneal scars, detached retina, etc. render an accurate diagnosis is the first stage extremely difficult and in the second stage, frequently impossible by the means at our disposal. A significant early sign is the perception of a spot in the field of vision, particularly if yellowish.[17] The mapping of this scotoma may locate the sight of a tumor still ophthalmoscopically invisible. A progressive hypermetropia of from 1 to 4 diopeters may develop, and there may be a localized edema of the retina, plus some increase in intraocular tension and a poor discrimination for green. Rönne,[20] diagnosed two cases out of eight by transilumination and suggests the possibility of a test for increased albumin in the aqueous which would be valuable if a technic could be developed. Samuels describes characteristic signs of necrotic malignancy as follows: "Chocolate colored content of anterior chamber, chemoses of conjunctiva and lid, . . . To the pain and vomiting of glaucoma is added the pain of scleritis, appearing with great suddenness in an eye that has been blind for sometime." A pathetic note is struck when one considers the number of cases of intraocular tumor that are discovered after enucleation of the globe.[19, 20]

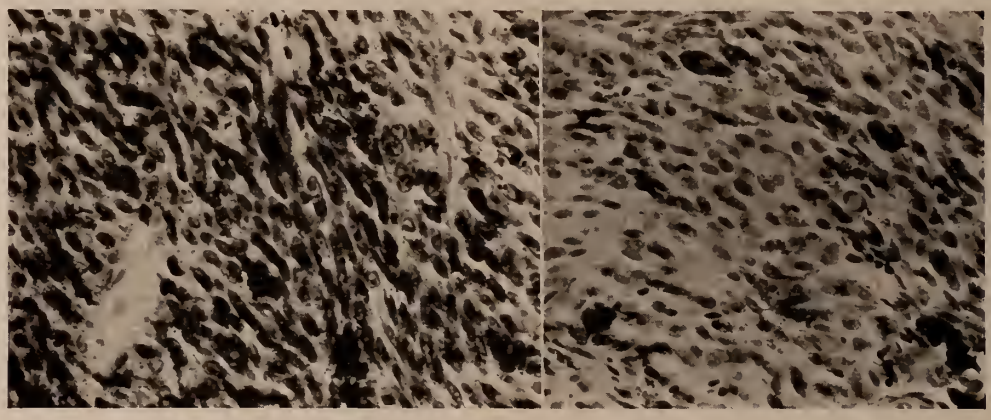


Fig. 1b. Case 1. High power.

Fig. 2b. Case 2. High power.

The differential diagnosis of tumors of the uveal tract is even more difficult than the diagnosis. Hemorrhagic glaucoma, tuberculous involvement (eg. conglomerate tubercle), syphilis, cysts, detached retina, benign melanoma, nevus, subchororidal hemorrhage,[21] metastatic sarcoma of choroid,[22, 26] exudiative choroiditis, phthisis bulbi,[19, 27] naevo carcinoma,[23] malignant leiomyoma,[24] true nevus,[20] a type of benign melanotic tumor of ectodermal origin,[25] encapsulated foreign bodies, congenital nevi, glioma and secondary tumors as carcinoma, are all worthy of consideration in the differential diagnosis. Benedict reporting on a series of 138 cases of melano ephithelioma of the eye, eye lids and orbit encountered at the Mayo clinic from June, 1917, to July, 1936, of which 108 were intraocular tumors, 32

of them occurred in the 6th decade, 26 in the 7th, 23 in the 5th, 17 in the 4th and the others scattered through the 1st, 2nd, 3rd and 8th decades of life.[26]

Lane[27] found most malignant involvements of the eye and adnexa included in a group largely made up of those in sedentary occupations, most of which are indoor occupations, without much exposure to sunlight or to known cancer irritants.

Concerning racial predisposition, Herold[32] in reviewing the literature found 3 cases of malignant melanoma of the eye in the negro up to Oct. 1, 1936, and to quote Bishop,[33] "apparently very few melanomas have been seen in the eye of the negro, Lister reported a case and there is one in the series to be reported in the present paper. Callender found no cases of melanoma of the eye in the negro in all eyes examined at the Army Medical Museum."

Concerning the origin of these tumors, considerable diversity of opinion exists. Collins[28] claims that the melanoblasts are both epiblastic and mesoblastic in origin. Mann[29] believes choroid is mesodermal in origin and that the choroidal pigment is not derived from the pigment layer of the retina. Benedict[30] states that "in recent years considerable doubt has been thrown on the mesodernal origin of such growth and much evidence has been produced to show that they are ectodermal in origin. Terry & Johns[34] believe these tumors should be called malignant melanomas, thereby avoiding any name indicative of origin. To conserve time, further discussion will be eliminated.

Because case 1 may be considered as typical of what one may call the "normal" growth of a malignant melanoma, we can for the moment consider it as a control.

Case 1. Adult, white male, aged 58 years. Usual diseases of childhood. Adult health has been good. No history of malignancy in family. Present complaint:— "I have had difficulty in obtaining glasses that will permit me to focus properly on anything, can't you help me out,." Ophthalmoscopic examination revealed cornea, anterior chamber and lens normal. A nodular mass was easily seen, somewhat yellowish in color and about one and one-half disc diameters in diameter and situated one-half disc diameter to the temporal side of the disc. We estimated its depth to be five to seven diopters. A reddish border was present on the disc side of the growth. The tumor mass was very sharply defined.

Diagnosis: Choroidal tumor, probably melanosarcoma. The patient was advised further consulation. He returned in a few days and the eye was enucleated under local anesthesia. Postoperative course normal. The eye was sent to the Army Medical Museum and the following report obtained:

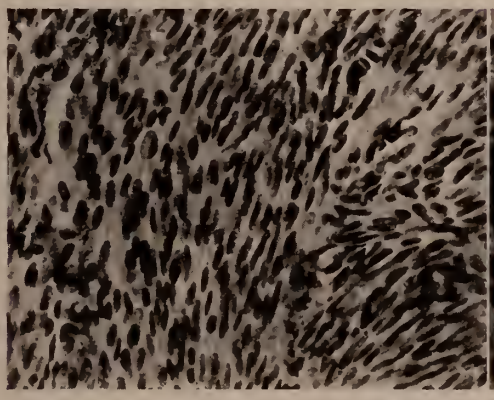


Fig. 3b. Case 3. High power. Predominance of spindle cells, subtype A.

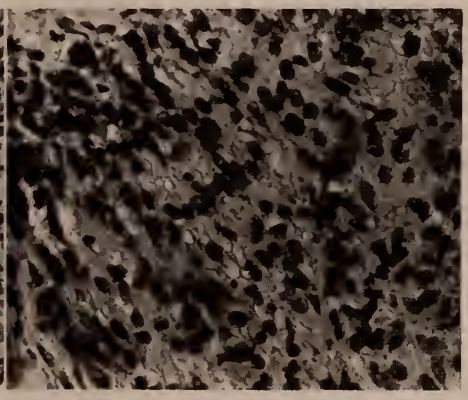


Fig. 3c. Case 3. High power. Predominance of spindle cells, subtype B.

51681. Gross: There is a rather heavily pigmented tumor mass extending from the equator almost to the optic disc and measuring about 1.0 x 1.0 x 0.4 cm.

Microscopic: In the region of the macula there is a tumor mass about 12 mm. in diameter which has not broken through Bruch's membrane. The tumor is composed of spindle cells, some of which are heavily pigmented, but many of which are non-pigmented. The nuclei generally present prominent nucleoli. There are a moderate number of mitotic figures. There are no prominent blood spaces. By the Callender-Wilder classification, the tumor is more than 50% argyrophil fibered. Extending along a nerve that leads out from the tumor obliquely through the sclera there are tumor cells. The adjacent retina shows detachment with a subretinal serous exudate. There is some hyalinosis of the ciliary process. The iris presents a few diffusely scattered lymphocytes. The remainder of the eye is not noteworthy.

Diagnosis: Melanoma, spindle cell subtype B, chroid.

Case 2: 51621. White, female, aged 54 years.

Present complaint: Vision right eye failing gradually. Extremely painful about temple two weeks. Blind one week. Tension 80. Cornea steamy. Pupil slightly dilated but reacts to light and accommodation.

Incipient cataract. Fundus hazy, no vessels seen. Iris muddy. Slight recent hyphemia 5 to 7 o'clock in anterior chamber.

Diagnosis: Sub-acute glaucoma. Tension 90; blood pressure. 175/88. Treatment: eserine and pilocarpine. Three days later tension 90, hyphemia still present. Seven days later most of blood in anterior chamber absorbed. Cornea clear. Fundus slightly hazy, deep cupping of disc, feels better. No pain. Tension 70. Ten days later hyphemia absorbed, tension 50, feels fine. Sent to hospital for iridencleisis and iridectomy (Holth). No complications. Uneventful postoperative course. No return of vision. Patient very comfortable and had no complaints about eye. 3 years and 4 months (e.g., 40 months) later called in the office to offer greetings. No complaints. Feeling fine. Suggested that the eye be examined. The iris was found to be entirely covered with wart like proliferations similar to a description of the Friedenwald's[81] case in which "wart like growths on the iris which resemble a field of stubble or a deforested landscape where only stumps of trees remain." Fundus presented deep cupping of disc. Advised immediate enucleation. Three days later eye removed under local anesthesia. Uneventful recovery. The eye was sent to the Army Medical Museum and the following description was forwarded to our office.

Gross: The pupil is large and irregular in outline. There is a small dark spot at the limbus. The iris is definitely thickened.

Microscopic: The nuclei of the corneal substantia propria are slightly irregular. Frequently pigmented cells appear in the anterior chamber and on the edematous posterior corneal endothelium. At the angle on one side there is a scar of an iridencleisis which has left a bay lined by pigmented epithelium and continuous with the anterior chamber. The iris is greatly thickened by a tumor mass situated mostly on the anterior portion of the iris and extending forward and laterally to block the chamber and infiltrate the spaces of Fontana and areas around the canal of Schlemm. This tumor mass is made up of strands and nests of generally spindle shaped cells, many of which are slightly or heavily pigmented. The cell nuclei generally present distinct, often acidophilic nucleoli. Between the nests there is a small amount of connective tissue and sometimes many large, heavily pigmented, irregular shaped cells. The tumor cells also invade the anterior portion of the ciliary muscle. According to the Callander-Wilder classification, the tumor is less than 50% argyrophile fibered. There is cortical and nuclear degeneration of the lens. The ciliary body is atrophic. The retina shows much microcystic degeneration particularly of the rod and cone, and outer plexiform layers. There is atrophy of the ganglion cell layer; enlarged cysts in the periphery. The choroid is not remarkable. There is excavation of the optic disc which is surfaced by prominent vessels, some of which are even elevated above the surface. A few red blood cells appear in the vitreous. There is no tumorous invasion of the optic nerve as shown by independent section.

Diagnosis: Malignant melanoma, spindle cell type B, iris. Secondary glaucoma.

Case 3: Colored male, aged 64 years (apparently full blooded negro, dining car cook). Present complaint: While train was rounding a curve outside of Denver, patient lost his balance and fell forward striking corner of pie locker against right eye. Had some pain but was able to do his work until he reached the end of his run in Chicago. Two days after injury, he began to develop severe pain in the eye and family physician was called who administered morphine sulphate gr ¼ hypo. Butny colution instilled in eye every two hours. Some relief followed. Three days after injury intense pain developed in and around right eye.

Past History: Usual diseases of childhood. Hasn't seen a doctor for 30 years, except for Company's annual physical examination.

Present complaint: Intense pain in and around eye. Can't see light. Some chemosis of lid and conjunctiva, cornea steamy, some cholocate colored material in anterior chamber, iris muddy, pupil slightly irregular. Large hemorrhage completely filling posterior chamber. Fundus not seen. No light perception or projection. Pupillary reflex not present. Tension 110. Diagnosis: hemorrhagic glaucoma; enucleation advised. Right eye enucleated under local anesthesis. Postoperative course normal.

This eye was also sent to the Army Medical Museum.

Two weeks later the following information was received: "Preliminary sections of the eye in the case of No. 48169 show a malignant melanoma of the choroid.

In view of the fact that melanoma is so rare in negroes, we would like very much to have a fairly complete history and some information concerning the characteristics of the patient. Is he a mulatto or a regular negro type?" . . .

Very truly yours,

Raymond O. Dart,
Maj. M. C. U. S. A., Curator.

We replied to this request stating that he was a full blooded negro, which his appearance would seem to indicate. Two months later the following report was received:

Gross: There is a small dark area in the anterior diameter visible through the cornea. Posteriorly, extending from the optic disc to midway between the disc and the equator and protruding into the eye for about 0.5 cm. is a somewhat pigmented tumor mass. There is complete cone-shaped detachment of the retina and the eye is filled with gelatinous exudate. The optic nerve is cut too short for independent section.

Microscopic: There is a moderately pigmented cone-shaped tumor arising in the choroid near the optic disc and extending midway between it and the equator. This is composed of spindle cells having small dense nuclei with evenly distributed nuclear chromatin. Only occasional cells have well developed nucleoli. There is a flat extension of the tumor along the choroid for a considerable distance beyond the main tumor mass. Small localized areas of large epithelioid type tumor cells occur in the peripheral areas of the main tumor

mass. The retina is completely detached, markedly degenerated and shows loss of retinal ganglion cells. There are small hemorrhages and numerous large fat filled or pigmented mononuclear cells in the exudate behind the detached retina. The anterior chamber is unusually deep due to keratoconus. The iris is atrophic, unusually dense, shows marked thickening of the blood vessel walls. The ciliary body is atrophic. There is marked sclerosis of the pectinate ligament and a small amount of hemorrhagic extravasation in the anterior chamber.

Diagnosis: Malignant melanoma of the choroid, mixed cell type, spindle A and B. Detachment of the retina. Secondary glaucoma. Recent intraocular hemorrhage.

The interesting features of this study have been: 1. A "control case" in which the diagnosis could be made in the first stage and which presented all signs, clearly defined, of an early intraocular tumor.

2. A case which had had previous intraocular surgery for glaucoma (iridencleises with iridotomy) performed three years before in which apparently normal iris tissue had been removed. (This could possibly have been a melanoma of the iris in the second stage of development.)

3. A melanoma of the choroid in what was apparently a full blooded negro with a history of recent severe injury to the eye in whom no previous symptoms of eye trouble could be obtained. This eye fits into the class of eyes described by Samuels,[18] in which the symptoms of necrotic malignancy were present and substantiated by the pathological report. Translumination in these cases was of no value. In two cases it wasn't necessary for diagnosis; in the third, hemorrhage in both anterior and posterior chambers totally obscured the evidence usually exhibited by the process.

4. We would like to emphasize the need of removing a long section of the nerve in every eye enucleated.

5. These patients are alive and apparently well at present, one and one-half years later.

We wish to thank the personnel of the Army Medical Museum for their suggestions and splendid cooperation in the preparation of this study.

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THE ACUTE NASAL INFECTION

Local Therapy Based on the Modern Conception of Nasal Physiology

O. E. Van Alyea, M. D.

CHICAGO

One of the first investigators of cilia in mammals was W. Sharpey[1] of London, who studied and recorded several of their outstanding characteristics. He noticed particularly their active lashing stroke with recovery, their vitality after the death of the animal to which they belong, the effect of drugs on their action, and the fact that they have a definite direction of sweeping, toward the ostium of sinuses, toward the nasopharynx in the nose, and toward the larynx in the tracheobronchial tree. Sharpey's observations were recorded exactly one hundred and two years ago. Had his work been followed up by others at that time, rhinology would now no doubt be far in advance of its present status and occupy a highly enviable position in the field of medicine. This monumental contribution was, however, followed by a long period of quiescence, interspersed only by an occasional observation of minor importance.

In 1876 Professor Bowditch[2] of Harvard, studying frogs' ciliated membrane, succeeded in estimating the immense capabilities of these structures for work. He found that each ciliated cell in one minute performs an amount of work equal to lifting its own weight to the height of 4.253 meters.

In 1895 St. Clair Thomson and Professor Hewlitt[3] produced the startling information that the normal nasal chambers are comparatively free of bacteria. This they found to be due to the propulsive action of cilia and the inhibitory action of a mucus film which ensnared the organisms, carrying them on to the nasopharynx. Rhinology again failed to realize the importance of these observations and until quite recently has ignored completely this very able defense mechanism of the nose and sinuses. Considerable research in the 1920's and more in the 1930's has at last given this subject the attention it deserves, with the result that therapy of nasal infections is undergoing considerable change. That confusion still exists, however, is shown by the wide variety of drugs in common use today. The list comprises:

1. antiseptics
2. ephedrine
3. oils
4. mild silver proteins
5. epinephrine
6. cocaine
7. bacterial lysates
8. powders
9. saline solutions

These agents are sprayed, packed and instilled into the nasal cavities and sinuses with little design or reason. For lack of a better therapeutic goal we have in the past, at the onset of a cold, directed our efforts toward combating the action of pathogenic bacteria under the assumption that the nasal mucosa was teeming with them. This form of therapy is now known to be ineffective, the antiseptics being more harmful to the host than to the microorganisms. We have flooded the nose with antiseptics of all types, maintaining the while a complacent disregard for the preservation or restoration of normal defense.

At last year's meeting of the American Medical Association, William J. Kerr,[4] speaking befor the Medical Section, ended his address with this statement: "Since it is apparent that no rational means are available to prevent or treat the common cold on the basis of the hypothesis of infectious origin, isn't it timely to go back to fundamentals and start anew?"

It is a generally accepted belief, at the present time, that the microorganisms usually associated with diseases of the upper respiratory tract have nothing whatever to do with the onset of an attack. They are secondary invaders only, coming on after the way has been paved by some other influence. The early invader is thought to be a filtrable virus which confines its activities to the initial stages of the disease. Such an agent has been described by Dochez,[5] his associates, and others,[6] both in this country and abroad. It is non-visible, non-culturable in ordinary media and does not respond to antiseptics as do the known pathogenic organisms, yet may be transmitted to human subjects and to chimpanzees and ferrets. Aside from this elusive virus, which is no doubt the activating agent, other factors assist in the development of a cold. Kerr feels that a most important factor is the individual's failure to ajust himself to sudden changes of temperature. Other items are physical fatigue, gastrointestinal disturbances, lack of sleep, indulgence in excesses of all types, worries and fears. Speisman[7] regards anxiety neurosis a highly important predisposing factor.

Whatever the cause of the initial invasion, we

From the Department of Otology, Rhinology & Laryngology, University of Illinois, College of Medicine.

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know that associated with it are marked vasomotor changes within the nose. Speisman[8] has shown that following a peripheral exposure to cold there is an immediate drop in the intranasal temperature with a noticeable ischemia of the nasal mucosa. If the individual is in a state of health, there is an almost immediate return to normal. If, however, he is below par, the effects of the chilling may remain for hours. Associated with the ischemia is a diminution of nasal secretion; the membrane lining the nose becomes dry and the cilia are slowed down or paralyzed. The protective film of mucus is gone, at least in spots, and the way is paved for an acute infection.

The early symptoms of a cold are dryness of the nose and throat, chilliness and sneezing due to a stasis of the mucous stream. Should the process continue, symptoms of toxicity follow: malaise, headache, sore spots in the throat, cough and fever. The tissues of the nose, at first dry, become engorged and there is an outpouring of a thin water secretion. The openings to the sinuses become blocked by the general swelling of the lining membrane and the structures about the opening. Further stasis occurs owing to lack of nasal and sinus ventilation. J. F. O'Malley[9] of London, who has made extensive studies on this problem, says: "Failure of the regular sequence of alternating pressure marks the first step in the onset of nasal disease. If increased respiratory efforts succeed in maintaining or restoring them, conditions of health will continue." Similar conclusions were drawn by McMurray,[10] who thinks the plus and minus changes in the nose and sinuses have considerable to do with ciliary activity. The nasal secretions in the early stage, although profuse, are lacking in antiseptic quality. This, according to the investigations of Hilding,[11] is due to the diminution of lysozyme, a ferment which is normally present in the nasal secretion.

Just what part the cold virus plays in all this is purely conjectural. Some investigators think they pass through the ducts of the goblet cells and mucus secreting glands affecting the nature of the secretion. Others think that they confine their activities to the ciliated cells. It is certain that they cannot be isolated for study and also certain that at this stage the nose is free of all culturable organisms.

Quite a common occurrence is a slight cold with recovery after one or two days. This, we may assume, is the situation wherein a cure takes place before the secondary invaders have gained a foothold. Cases of this type are reported occasionally by individuals who have been vaccinated against the ordinary pathogenic bacteria of the upper respiratory tract. Walsh[12] felt that many of the slight colds reported following the use of his nasal spray vaccine were due to the action of the initial invader only, an immunity having been established against the known bacteria. Up to the present time no antivirus has been developed which will combat the initial invader of influenza or the common cold.

A recent article by A. G. Rawlins[13] announces a new method of combating the action of this virus. It is based purely on the theory that a similar virus which attacks plants has been successfully routed by treatment with sulphur dioxide fumes. In an epidemic, the author supplied eighty patients with this remedy and sixty-six reported themselves cured the first or second day. When tried on colds of three or four days' standing it afforded no relief. This last item fits in handily with the theory that after the third day of a cold the unknown virus ceases activity and the infection is carried on by the known bacteria.

It has been shown how failure of the mucociliary defense mechanism permits inflammatory organisms to gain entrance into the tissues. Stained sections have revealed their presence scattered throughout the superficial layers of the nasal mucosa and colony formations at the base of the cilia.

Such an invasion calls for the support of further defense and this is found in the submucosal stroma. Here phagocytic elements from the blood and fixed tissues are mobilized against the invader. Prominent in this array are the histiocytes, which during the inflammatory stage aid in the disposition of the bacteria and later as fibroblasts assist in repair. The nasal membranes are rich in lymphatics and drain into the deep cervical and pharyngeal glands. In severe infections swelling of these glands may lead to stiffness and tenderness of the neck muscles and even to suppuration. Involvement of the sinuses, the ears, and the lower air passages may occur as a result of an extension of the infection produced by the known pathogenic bacteria. These organisms are also responsible for the long stand-

ing colds and for the change from an acute to a chronic stage.

Investigative work on the secondary defense mechanism is being ably carried out by Fenton and Larsell.[14] These workers have already produced much valuable information concerning the response of the sub-structures of sinus membranes to all manner of treatment and manipulation.

Most of the recent research has, however, been directed toward a more complete understanding of muco-ciliary activity and nasal ventilation.

A tireless worker in this field is Arthur Proetz[15] of St. Louis, who is in a large way responsible for the awakened interest in nasal physiology.

Important also is the work of Hilding,[16] who has traced the course of the mucous streams in the nose and sinuses. He calls attention to the fact that normally the mucous film is in constant motion toward the nasopharynx and is continuous with the film which covers the pharynx and passes down the esophagus into the stomach. Foreign material picked up in the nose starts on its way and if not ejected en route will eventually enter the stomach.

Lucas and Douglass[17] found the mucous film to be made up of two layers, an outer mucinous, viscous layer which contacts the tips of the cilia and an underlying more watery layer in which the cilia work.

According to Negus[18] of England cilia work normally in a medium which contains a variety of salts in combination, all of them being necessary. Early rhinitis cases vary in reaction from neutral to alkaline. Normal mucus has reaction varying from pH 6.6 to 7.4. Cilia beat vigorously in an alkaline solution of pH 8.5 and slow down in a medium of pH 6.4 or less, although Proetz has observed their action in sinuses containing pus. Linton[19] thinks paralysis of the cilia is produced by changes in the hydrogen ion concentration rather than the toxicity in the presence of bacteria. He tested ciliary activity in a medium of pH 5.0. The beat stopped in one to two minutes to be continued after the addition of NAOH sufficient to raise the pH to 7.4.

Charlotte Haywood[20] thinks the length of time the cilia continue to beat depends on the pH of the solution but to a greater extent on its CO_2 tension.

Buhrmester[21] found the normal mucin content of nasal mucus to average 1.31%. When secretion increases, as it does in a beginning cold, the mucin content drops, which affects the viscosity and allows virulent bacteria to penetrate the mucosa. Linton[22] reports that death was caused in seventeen of eighteen animals by such an invasion and he thinks the invasion was successful, due to the increased hydration of the nasal secretion which followed the inoculation.

Considerable work has been done to determine the effect of nasal obstruction on nasal physiology. In the course of his experiments Hilding blocked off one side of a rabbit's nose by suturing the anterior nares. After three weeks, examination revealed considerable damage to the cilia not only on the obstructed side but on the open side as well. This led Proetz to the observation that removal of the anterior wall of the sphenoid and ethmoid bulla must be harmful to the cilia within these cavities. This is in line with the work of Lucas and Douglass,[17] who found that the cilia beat much more vigorously along the protected areas of the floor and the under surface of the inferior turbinate than along the medial surface of the middle turbinate, where they were constantly exposed to the blasts of inspired air. It is also known that the cilia on the anterior surface of the turbinates are practically inactive.

The importance of nasal ventilation on sinus drainage was shown by McMurray.[9] He filled both antra of a human subject with lipiodol and blocked off one naris. X-rays at intervals showed the oil unmoved for seventeen hours on the occluded side, while on the open side oil had passed out of the ostium and reached the floor of the nose in five hours. After removal of the occlusion, the oil on that side started to move at the same rate of speed and also reached the floor in five hours. Negative pressure caused by inspiration is shown by this experiment to be of vast importance in the evacuation of heavy material from the sinuses. This idea is not new. Hajek,[9] some years ago, said that the narrow and deep infundibulum had an effect similar to that of a suction tube upon the pus discharging from the antrum. Yankauer[9] also thought that inspiration exerted a suction action on the sinuses, the return of the fluid being prevented by a valve like action of the hiatus semilunaris. We may glean from these observations that the conformation of the hiatus semilunaris and infundibulum is the essential factor in the production of nega-

tive pressure in the sinuses draining into this area, and this fact should discourage indiscriminate operations in the middle nasal meatus which might destroy that conformation.

The extreme viability of the nasal epithelium has always been a constant source of surprise to investigators. Sharpey,[1] one hundred years ago, observed active cilia in the gullet of a turtle fifteen days after its death, while the body was in a state of putrefaction. This may be explained on a philogenetic basis, the ciliated membrane being an ancient structure biologically. Heine[23] has shown that the cilia are unaffected by large doses of radium and x-ray, although the substructures show marked changes. Fenton[24] has shown the ineffectiveness of x-rays in the treatment of sinusitis.

Ciliary response to the action of drugs has been thoroughly covered by Lierle and Moore,[25] Luongo[26] and others. The results of their work on the drugs in common use reveals the unfortunate state from which we hope nasal therapy is emerging.

1. Water, tap or distilled, promptly stops all ciliary action. When sodium chloride is added to make a normal saline solution the action of the cilia is restored. Some have found the rate of action to be accelerated.

2. Oils applied to the membrane lie stationary as a heavy blanket, causing a definite interference with the normal ciliary action.

3. Mild silver proteins, argyrol and neo-silvol, are colloids incompatible with sodium chloride. They are applied in aqueous solution, which in itself is detrimental. All observers report the precipitation of the drug as it contacts the mucosa. Motion of the cilia was retarded, although recovery was good following the application of normal saline. Edema and fragmentation of epithelium has been observed after a prolonged contact of 10% argyrol with the membrane lining the frontal sinus.

4. All observers found that silver nitrate, 0.5%, destroys the cilia.

5. Cocaine solutions stronger than 2.5% paralyze the action; less than that have no effect other than shrinkage and blanching the surface.

6. Epinephrine, 1:1000, the preparation in common use, causes immediate paralyses; 1:5000 slows the action; 1:10000 causes an increase in action which lasts for one hour.

7. Ephedrine, 0.5% to 1%, in normal saline produced no change, the mucosa functioning normally throughout the application. A 3% solution was thought by some to increase activity.

8. Camphor, thymol, eucalyptol, menthol, zinc sulphate, merthiolate 1:10000, mercurochrome 2% all cause a decrease in the rate of motility, although recovery was good in most instances. Thymol and mercurochrome, however, had a lasting depressing action.

Following intravenous administration, these effects were noted by Luongo:

9. Morphine caused initial decrease in action, followed by restoration. Codeine, slight retardation.

10. Sodium amytal and scopolamine had very little effect.

11. Atropin caused drying and cessation of ciliary action, which fact contraindicates the use of a preparation called "Rhinitis Tablets."

Luongo also found that drying air caused cessation of motion, moist air very little inhibition and that cooling the cilia retards their action. Bathing in normal saline always restored slowed down cilia and increased the rate of action.

The results of these various experiments leave the rhinologist very little with which to work. Aside from the fact that he may remove bacteria from sinuses by lavage he must practically ignore their presence. The oily sprays which have heretofore been regarded as soothing agents to the red swollen membrane should be used sparingly. The physician does find, however, that he may satisfactorily combat the engorgement and improve breathing space with ephedrine. This drug combined with sodium amytal may be taken internally and, according to Gowen and Nedzel,[27] affords considerable relief in the early stages of an acute cold. Locally, ephedrine, 1%, in normal saline solution may be used effectively in all stages of a nasal infection. Early, while the nose and throat are in a dry state, this solution prevents stasis by supplying the necessary moist medium for ciliary action and by its flushing action on accumulated microorganisms and secretions. Later this function is taken over by the excessive watery secretion supplied by the nose itself. Then, the ephedrine-saline solution is effective in minimizing the engorgement which is so apt to block ventilation of the sinuses and the breathing passages.

The most effective means of administering the ephedrine-saline solution is by instillation in the

side posture, head-low position as described by Parkinson.[28] This position places the patient's nasal cavities in the most advantageous position to receive the maximum benefit from the treatment. The patient lies on a couch or table on the right side with his arm under him and a pillow under his shoulder. A dropperful of solution instilled into the right nares flows to the upper straits of the nose, where it is allowed to remain for three or four minutes. The shrinkage action of the ephedrine should soon act on the middle turbinate sufficiently to permit the solution to flow into the middle meatus. Here, further shrinkage causes further penetration and unless the congestion is extreme the solution should reach and immerse the various sinus ostia opening into this area. The openings reached by this treatment are those draining the maxillary, the frontal and the anterior ethmoidal sinuses. These cavities comprise the anterior group and are those most likely to be involved in the acute process. Gentle blowing removes the solution and the procedure is repeated on the left side.

In view of the fact that the solution is nonirritating; that its continued use is in no way detrimental to ciliary action, the procedure may be repeated at intervals if the comfort of the patient warrants it. This form of treatment should not be expected to cure or prevent a nasal infection and there is always the possibility of carrying the disease to the sinuses. The same danger, a spread of infection, characterizes all forms of local nasal therapy and is no more likely with the instillation of ephedrine-saline solution than with the others. The relief afforded the patient with this form of treatment is usually instantaneous and lasting, and this fact alone more than justifies its use.

135 S. LaSalle Street.

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DISCUSSION

Dr. Francis Lederer, Chicago: Dr. Van Alyea has ably presented an historic resume to us this morning in order to rationalize a rather confused therapeutic armamentarium. While he did not reach the conclusions that might be drawn from such a presentation, he has apparently tried to base his discussion on an anatomic-physiologic conception. However, there has been an attempt to make the cilia a sort of glorified structure, as all these conceptions are entirely based on ciliary activity. Yet we must remember that the

cilia are more resistant than these examples seem to prove. Cilia have been exposed to x-ray and radium dosage which ordinarily would exfoliate the skin of the neck or body, and yet cannot withstand silver nitrate. I do not say that in defense of present therapeutic problems, as we find them in the field of rhinology, because I personally decry the fact that the nose has been a dumping ground for everything under the sun, and we get most of the basis for this therapy from the detail men who visit us. Whatever the cause of the so-called common cold, it is certainly conjectural insofar as our present knowledge is concerned. The numerous well-conducted studies, upon which tremendous sums of money have been spent, have merely produced results which are reiterations of the old adage—if you are free from contact from those with colds and keep up your resistance you will not get the cold. Otherwise, the knowledge seems to be a hundred years old, as Dr. Van Alyea said. Perhaps we will all admit that the important therapeutic basis is the improvement of nasal ventilation, and we feel that this is a physiologic approach. Submucous resection, for example, well performed and properly indicated, we all agree is the finest type of operation we have at our command. However, we do not recommend any operation that mutilates the normal structures that are so necessary to nasal physiology.

Dr. Van Alyea does not want us to sit back complacently and think we have achieved perfection. He brings in the common cold, because he feels in this common cold are all the things with which we are concerned, the starting point of future ills. In our laboratories and in our clinics we may find a panacea, but I doubt very much if we will find it by emphasizing too much these hundred year old concepts regarding ciliary activity.

Dr. A. R. Hollender, Chicago: General practitioners for years have been treating upper respiratory infections without local measures. Many cases improved and only a small percentage developed complications. We cannot overlook the fact that a large number of head colds and sinusitis cases get well spontaneously. The approach to treatment in upper respiratory infections depends largely upon the specialty we are practicing. It is well known that the rhinologist emphasizes topical treatment.

It is questionable whether the cilia have such a significant rôle in nasal physiology. Certainly there is evidence to prove that disturbed physiology of the nose is often out of all proportion to the clinical course.

Vitamins undoubtedly have a relationship to upper respiratory disease. It is known, however, that the claims of commercial houses in this connection have been highly exaggerated. When vitamin deficiency exists, it should be corrected.

Dr. Thomas Galloway, Evanston: This work is very valuable, showing the normal physiology of the nose. I think, however, that there are some defects in the line of reasoning. The author visualizes what is the normal situation in the nose and tries to reproduce it by treatment. But there is a marked reaction in the inflammatory process which is nature's response to invasion by bacteria, and that may be the process we should try to reproduce. X-ray is indicated in certain infections, and the response to therapeutic x-ray is chiefly increase in the degree of nature's own response. Foreign protein therapy is the same. Mild silver salts may act likewise and, I think, are quite valuable. In catarrhal conjunctivities they do act well in many cases, we do not know exactly how. Because we know so much more than formerly about nasal physiology we must not be too quick to think we know all there is to know. This paper is valuable in warning us against indiscriminate and illogical treatment.

Dr. O. E. Van Alyea, Chicago (in closing): I want to thank all these gentlemen for discussing this paper and at the same time apologize for not having anything original to contribute on this subject. Most assuredly we have not arrived at a state of perfection in nasal therapy. At the present time most of our efforts are directed toward an attempt to restore normal physiologic function and at the same time eliminate some of the annoying symptoms associated with congestion and excessive nasal discharge. The ephedrine-saline solution as advocated by Proetz and by Parkinson offers perhaps our most efficient agent toward this end. Perhaps, however, putting this solution into the nose with the head down is associated with some danger of carrying infection to sinuses which have been free. I am not familiar with the possibilities or the results. So far as vitamins are concerned, there is little I can say except that their use is indicated in the presence of a vitamin deficiency. My paper has been largely a resumé of the literature on the subject. There is still much to be learned and problems to be solved. It is hoped that bringing this subject up now and then will stimulate still further research.

VAGINAL SEPTUM, DOUBLE CERVIX AND BICORNATE UTERUS

Report of Six Cases of Maldevelopment of the Birth Canal

CHARLES EDWIN GALLOWAY, M. D., F. A. C. S.
Assistant Professor, Obstetrics and Gynecology
Northwestern University and Evanston Hospital.
EVANSTON, ILLINOIS

One of the factors in maternal mortality in this country is the increase in the use of cesarean section. Almost any abnormality is used as an excuse of terminating the pregnancy through the abdomen. Anything that one may do to help clear the practitioners' minds of the fear which leads them to this procedure seems indicated. I would, therefore, like to report five cases where the uterus and vagina were not properly developed, three of which were delivered from below, with the result that out of the five cases there are four living babies.

Case 1. Para-i, aged twenty years. At the age of

16, she was ill for one month with pelvic pain and fever, and in January, 1923, she was operated on for appendicitis and the appendix was removed; however, the symptoms continued and the following May she was operated on by another surgeon and the uterus was drained of a large quantity of old blood. Menstruation then began and continued for several years. Several months before seeing the patient, her monthly flow became less and she had considerable menstrual pain each month. She was first seen November 9, 1926, and at that time reported no menstruation for two months; however, she was not in pain. Her vagina was quite shallow, measuring only five centimeters and in the upper third of the vagina there was a septum and no cervix could be found—not even an opening which would correspond to a cervical canal could be found using the smallest probe. This patient had some bleeding from November 25 to November 29 but she was regarded as pregnant in spite of her history, and on January 11, the fetal heart tones were heard. Since there was no cervical opening and the vagina was quite shallow with a partition, we felt that we were justified in terminating the labor with a cesarean section which we did on May 20, 1927. No septum was found in the uterine cavity and after delivering the baby, an eight-inch clamp was forced into the vagina through a small dimple which we believed corresponded to the cervical canal. The baby weighed seven pounds, three ounces, and the patient made a very good recovery. Drainage through this opening was quite sufficient.

Case 2, a primipara, aged 27 years. When examined for the first time she was found to have a septum in the upper third of the vagina, and two cervical openings. From the fourth to the sixth month this patient spotted occasionally and at six months the membranes ruptured and she went into labor. During her second stage of labor, the septum was divided and spontaneous delivery was permitted. The baby was not viable and soon expired. After delivery, the upper and lower half of this septum was cut back flush with the anterior and posterior vaginal walls and the raw surface was repaired with fine plain catgut. At the end of eight weeks, the patient presented herself for examination and outside of a ridge on the anterior and posterior vaginal walls, the vagina was normal and there was only one cervix. Some of the raw edges of the cervix were cauterized and later the cervix had the appearance of being normal. This patient was seen three years later for sterility. She had a normal menstrual history and both the vagina and cervix were normal; however, no gas could be passed through her tubes.

Case 3. Para-i, aged 24 years. She was first seen in 1927 when she was three and one-half months pregnant. She had a septum in the upper vagina, two cervices and a bicornate uterus. The pregnancy was in the right side but the left side of the vagina was larger than the right side. She went to term and at the time of labor the cervix on the right side dilated rather rapidly, and there was only a small amount of dilation of the left cervical ring, similar to the way in which the rectum dilates during the delivery of the head through the vagina. The tissue between the two cervices was quite thin and this septum was dealt with in the same manner as in Case 2. During the second stage it was severed and the baby was allowed to deliver spontaneously. The septum was then cut back, including the septum between the left and right side of the cervix and the raw surface was whipped over with plain catgut. When this patient was seen at the end of eight weeks, she had a normal vagina except for the scar tissue, and it had only one cervical opening. The external os was quite firm, and was closed similar to that of any other multipara. The right side of the uterus remained the larger.

Case 4. Primipara, aged 24 years. She was first seen in 1934, and was an exceptionally small individual, measuring only four feet, ten and one-half inches tall. At this time she was two and one-half months pregnant. A septum was found in the upper half of the vagina, and there were two cervices but only one uterus. The division between the uterine horns could not be defined by bimanual examination. As the uterus grew, it enlarged more on the right side. She was due February 5, 1934, but went into premature labor on November 22, 1933. After several days of spotting and pain, the membranes ruptured and she proceeded in active labor. This case was handled the same as the other cases. The septum was severed when tension came on it, and was dealt with in the same manner as the others following delivery. The baby weighed two pounds and ten ounces, and is alive today and quite healthy. This cervix needed to be cauterized at eight weeks, but five months after delivery, an examination revealed only one normal cervical opening. She gave a normal menstrual history.

Case 5. Para-ii, aged 37 years. She had been operated on by cesarean section in another city, three years previously because of a heart condition as well as vaginal septum and double cervix. On examination she showed a septum in the upper third of the vagina, with the right side much larger than the left, and two cervical openings. She carried her baby to term, and since she had had a previous cesarean section, this baby was delivered by a low cesarean type of operation, and when in the uterus, the lower uterine segment showed ridges corresponding to the midline and two cervical openings. This patient was sterilized at the time of operation. The baby weighed six pounds, eight ounces and lived. The patient has been seen on and off for the past two years and has a normal menstrual history.

Conclusions: Maldevelopment of the birth canal, such as, the presence of a vaginal septum, a double cervix, or a bicornate uterus is not an absolute indication for cesarean section. If pregnancy occurs, the patient should be permitted to have a test of labor.

636 Church Street.

WHOLE SUPRARENAL GLAND: A USEFUL THERAPEUTIC AGENT

ORVILLE BARBOUR, M. D.
PEORIA, ILL.

My experience with suprarenal gland as a therapeutic agent covers a period of seven years, and involves more than 2,500 clinical cases. It includes a variety of conditions, many types and degrees of cases, in many kinds of individuals of various ages, under a variety of dietary, climatic, and other environmental factors. The products of several different firms have been used. Different dosages have been tried until the more effective ones were found.

As my experience during this study increased, I found it necessary to discard some early interpretative impressions. On the other hand, certain observations recurred so consistently with such a variety of patients, under such varied conditions, and continued to occur as time went on, so that certain beginning impressions gradually established themselves as convictions. It is those clinical observations which have stood the test of repetition and time which I choose to present in this report.

PRIME ESSENTIALS

Obtain a potent product. Anyone who has had any clinical experience with endocrine therapy is well aware that one's results depend very much upon the potency of the product administered. Take thyroid for example. There can be no doubt but that the effects one obtains from thyroid treatment depend very much upon whose preparation is being used. I have found this to be just as true of the adrenal gland products. With some, one will observe little if any effects. Whereas, with a potent preparation, the promptness and definiteness of the results can leave little doubt in observant minds as to its effectiveness.

Optimal dosage. To obtain satisfactory results with any given remedy one must find the best dose for each patient. Enough to furnish the desired maximum benefits, and at the same time being careful not to prescribe more than enough, to avoid untoward or perhaps injurious effects. This, of course, should be kept in mind with suprarenal gland therapy, as well as with any form of treatment.

A reasonable conception of neurohormonic activities. The more one knows about physiology and biochemistry the better will be one's therapeutic results with his patients. Accordingly, the better one may understand the vegetative nervous system the more capable will he be to make use of supraprenal gland or any other endocrine form of treatment. The more will he know what reactions to anticipate, the more intelligently may he interpret the effects, and naturally, the more able will he be to obtain desirable results. One cannot hope to expect the utmost benefit from any therapeutic agent, no matter how potent it may be, unless it is applied intelligently.

RESPIRATORY DISORDERS

Coughs. With the exception of codein, I have found no drug which is as dependable for controlling distressing coughs as is the adrenal gland material. At times codein will relieve coughs on which the suprarenal gland seems to have no effect. On the other hand, at times the adrenal material promptly relieves certain coughs which codeine or atropine do not affect. Occasionally when a cough fails to respond to either of these remedies, one may obtain the desired relief by combining the suprarenal preparation with iodine or thyroid. The glandular treatment appears to be especially effective with the spasmodic type of coughs. I say glandular treatment advisedly. Because at this writing one can hardly say whether the action of the adrenal substance is that of hormones, or of drugs.

In all, some 1450 cases with disturbing coughs have been treated. (For practical purposes and for the sake of clarity, throughout this paper, when quoting figures I will resort to round numbers rather than cite exact figures). The coughs treated were in 650 cases those of acute nasopharyngitis, in 300 of acute bronchitis, in 150 of chronic nasopharyngitis, in 70 of chronic bronchitis, in 100 of measles, and in 250 cases of whooping cough.

With the exception of the cases of measles, all of them were relatively afebrile in type. Many if not most of the conditions that are discussed in this article are apt to be associated with relative hypoglycemic or vagotonic conditions. That is one of the reasons why, except for measles, I have deliberately avoided using the suprarenal or thyroid gland in pneumonias or any other diseases which may have associated with them, hyperpyrexia, hyperglycemia or any other probable manifestation of increased metabolism. I have tried the adrenal material, never the thyroid, in

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100 measles cases earlier in this study because there seems to be certain peculiar likenesses between measles and pertussis cases. Although this remedy did appear to control the coughs, and the patients did seem to do well, I discontinued its use in measles until increased information might more justify its use in such conditions.

With the coughs of the other disorders named, however, I am increasingly convinced of the value of the suprarenal gland therapy. I have seen it check promptly so many coughs either at their beginning or later after other measures had failed, that I can feel no other way about it. After seeing quite a few patients with histories of persistent disturbing coughs of weeks or months duration, whose coughs promptly abated and soon disappeared following the introduction of the adrenal gland treatment, one can hardly help but believe in the effectiveness of this treatment.

With whooping cough one cannot depend upon the suprarenal gland as much as he may with other coughs. In some cases, one may need to resort to other measures for a time or perhaps altogether. However, the adrenal material does give more relief in more cases, than has any other palliative remedy in my hands. Its effectiveness can better be demonstrated in late cases with a persistent cough. It has been said that late cases are better testing grounds for proving the benefit of any palliative measure in pertussis. Early cases may have been mild without any treatment. All in all, I appear to obtain better results with my whooping cough cases by giving them serum or vaccine, and suprarenal gland or whatever remedy may seem indicated in individual cases. Usually when the endocrine therapy proves to be unsatisfactory I have found that phenobarbital or perhaps iodine especially in the form of calcium iodid usually will give the desired relief.

Rhinitis (Vasomotor). I learned early in this study that adrenal gland combined with iodine or thyroid appeared to relieve the non-specific snuffles of infancy. I also observed that the same treatment seemed to relieve the afebrile "colds" of infants. Furthermore, I had noticed that in those cases which were being treated for their coughing, the frequently associated discharging noses seemed to clear up with the disappearance of the coughs. I could not resist the temptation to try to find out what the glandular therapy might do with the "colds" of children. Although, these cases seemed to do just as well as did those of the babies, like I have heard Dr. Brennemann remark about certain methods of treatment, I hesitated to believe my own observations. The ordinary head "cold" being a self-limited disease, I felt that I could not be sure of any apparent effects. However, gradually it dawned upon me that some of these patients particularly the allergic ones were returning with "colds," and that they seemed to respond to the endocrine treatment as well as they did before. Later on, a few of the mothers told me that their children were not having so many "colds" and that these "colds" were less severe. I found from my records that this improvement was also true of others. What was still more convincing to me was that a chronic vasomotor rhinitis in a few patients cleared up following treatment with the adrenal and thyroid glands. In all, this method of treatment was studied in some 300 cases of acute rhinitis, and in 100 cases of chronic or recurrent rhinitis. I feel that the results obtained furnish sufficient justification for further observations with the glandular therapy in this kind of conditions. I am reporting them for what they may be worth. I should point out that the results with the endocrine treatment in a few cases of hay-fever were disappointing. Some relief was obtained in certain cases but nothing like that which is seen with the other types of rhinitis.

Laryngeal Stridor. Judging from an experience with 40 cases of croup or laryngeal stridor of infants or children I believe that suprarenal gland may prove to be as effective in such conditions as is any other therapeutic agent of today. These conditions usually being so acute and perhaps self-limited, the results of any treatment are difficult to evaluate. Only further trial can decide the question.

Asthma. One or more attacks of dyspnea or asthmatic bronchitis has been treated with the adrenal gland in 130 cases. I have found it to be as effective if not more so than any other remedy which may be administered by mouth. When it fails, epinephrin given hypodermically will usually prove to be necessary.

Suprarenal gland seems to be very helpful in assisting in curing asthmatic individuals of repeated attacks. By continuing the daily administration of the adrenal gland and with it thyroid or iodides for as long as may seem indicated along with appropriate corrective and dietary measures one may apparently expect a cure of many of his

children patients. At least I have found it so in 40 cases. The extent of one's success in individual cases depends a great deal upon the nature of the cooperation one receives from the attendants.

GASTROINTESTINAL DISORDERS

Vomiting (spastic). In those cases of pylorospasm of infants which do not promptly respond to atropine or phenobarbital, one may anticipate relief from properly administered suprarenal gland in practically all of his cases. At least I have found it so in 60 of them. This is no place for a discussion of how much pylorospasm has to do with the vomiting of congenital pyloric stenosis. But this I do know, since 1929 *none* of my cases of congenital pyloric obstruction have required surgical intervention for relief. I began this study in January, 1930. Perhaps it is a coincidence. Time will tell. Most of these cases were relieved at home. The few that were hospitalized for lavages, gavages and closer observation were home within a few days. None of them, that is of those which were seen early, went through a critical period of anhydremia. One shouldn't have to wait for results with the endocrine gland therapy. If, providing the feedings are reasonably correct, a satisfactory improvement has not occurred within 24 hours, one should increase the dosage, or add iodine or thyroid to the medication. So far, with such a plan I have not had a failure with this kind of cases.

Colic (Infants). The results following adrenal gland administration in uncomplicated gastrointestinal colic of infancy are not so striking as are those in pylorospasm. Phenobarbital in some cases may serve better. However, one may encounter cases which do not respond to phenobarbital or other remedial measures, in which suprarenal gland may seem to supply the needed adjunctive help.

In 150 cases of colic in infants, I have apparently obtained satisfactory relief with the adrenal material alone or as an adjunctive remedy. In these cases one needs to pay close attention to the bowel function. If the bowels are free, suprarenal gland is indicated. If the patient should be constipated, one may find it advisable to also give atropine, iodine, or thyroid.

Diarrhea. The adrenal gland seems to have as much of an antispasmodic action upon the intestinal tract as it does upon the pylorus. I have found it a satisfactory agent in checking or assisting in checking frequent loose stools in 200 cases of diarrhea in infants and children. The suprarenal preparation alone or with bismuth has been far more effective in my hands than has the raw apple or any other method of treatment. Nor does the diet need to be so drastically restricted with this method. McLean and Sullivan[1] have reported similar experiences with cortin.

CIRCULATORY DISTURBANCES

Cyanosis. In idiopathic cyanosis of the newborn suprarenal gland seems to be quite helpful in bringing about relief. Ten cases have been so treated. It also has seemed beneficial in a few cases with congenital heart lesions. In such conditions the heart should be watched and digitalis given at the first signs of over-stimulation.

NERVOUS SYSTEM

Antispasmodic. Many of the cases with the conditions under discussion may be associated with a hyperactivity of the vagus system. This may be manifested by the patient in one or more ways. So it is not surprising that one individual may demonstrate one or more than one of these disorders from time to time. Hence, the observations reported in this paper would seem to indicate an antagonistic effect of the suprarenal material upon the parasympathetic system, probably through its stimulating action upon the sympathetic system.

Sedative. The patients with the so-called vagotonic symptoms are frequently nervous, jumpy and irritable. Relief of the disturbances is usually followed by a noticeable quieting down of the nervous condition. I had attributed this simply to a relief from the irritating disorder. It did not seem possible that there would be any actual sedative effect from the glandular substance. However, having been asked by several mothers whether there was anything in the medicine to make their children sleepy, I began to pay closer attention to this question. I have observed that in some cases there does seem to be a sedative effect, and in some instances an actual drowsiness, never a stupor, especially following repeated large doses. Comparing this impression with the relaxation which may follow thyroid administration in some cases of hypothyroidism, it does not seem so impossible that the adrenal gland may have a similar action in certain individuals.

SKIN DISORDERS

Eczemas. Suprarenal gland alone or with

iodides or thyroid has been used in 60 cases of eczematous lesions. This form of treatment in my experience has been much more successful in relieving eczemas than has any other therapeutic measure. To my mind the response has been more prompt and more certain than are those which have been reported with corn oil. And there is no comparison in the palatability of the two preparations. One doesn't have to wait, as has been reported of the oil method, for some time to elapse for signs of improvement to appear. A definite improvement usually follows the adrenal gland administration within one or two days. When the proper dosages for individual cases have been attained and if they are maintained, rarely does the skin condition fail to remain under desirable control. If the attendants should discontinue the treatment too soon, the lesions will soon reappear. They disappear again, however, following resumption of the medication. Such experiences in my opinion and also in those of observing attendants are excellent testimonies of the effectiveness of the glandular method of therapy. Because of the tendency to self-limitedness of the eczemas of infancy, one may be inclined to discount any apparent response to whatever medication may be administered. In children, however, the equally good responses which occur with the suprarenal gland treatment are more impressive.

A striking feature of the use of the endocrine substances in treating eczemas is that feeding the patients is not nearly so much a problem as it is with other therapeutic measures. Within a short time the patients are enabled to tolerate with little or no reactions foods to which they had been definitely hypersensitive. Therefore, it is relatively easy to supply the children with a balanced and adequate diet and at the same time have the skin condition remain under satisfactory control. Eggs and perhaps butter fats are the only foods with which one may have some difficulty. At least, that has been my experience. Local palliative applications may be helpful in the beginning but they are seldom needed for any length of time.

Urticaria. Although I have prescribed suprarenal gland to 15 cases of urticaria, the endocrine material does not seem to be nearly so dependable in relieving these conditions as it does with the eczemas. A few of the cases appeared to obtain some relief, but in most of them there was little if any noticeable effect.

Diaphoresis. Although I have no data for a definite opinion on any direct effect that the adrenal preparation may have on the sweat glands, I have noticed that in several cases of thyroid dysfunction an accompanying excess perspiring disappeared along with the other signs and symptoms. This phenomenon may be merely of passing interest and may have no practical application.

UROGENITAL TRACT

Antidiuretic. The only observation I have on an action of the adrenal gland preparation upon kidney function is that it noticeably inhibits the diuretic action of the thyroid therapy.

ENDOCRINES

Thyroid. If suprarenal gland had no other therapeutic value its use would be extremely worth while with thyroid therapy. In treating hypothyroid patients who are intolerant to thyroid gland in minute doses, or those who later develop toxic reactions, the adrenal substance is simply invaluable as an adjunctive measure. One may supply sufficient amounts of thyroid to intolerant individuals, one may give larger dosages to most of his cases without toxic reactions developing and thus be enabled to obtain desirable results with a minimum of untoward effects. Since gaining that information, I have found the treatment of cretins and hypothyroid children to be easier and my therapeutic results in such cases are uniformly much better.

In some respects the adrenal material seems to have an antagonistic effect upon the thyroid, in others, a synergistic one. And yet I am not sure that it has either directly. Might not an actual substitution or replacement effect be involved in either case? For example, thyroid gland by mouth may stimulate gastrointestinal peristalsis, cause diuresis, hyperpyrexia, erythema, iodine rhinitis or dermatitis, a cough, or laryngeal stridor. Suprarenal gland by mouth in turn may inhibit any or all of these untoward effects of thyroid action. It inhibits the untoward reactions to thyroid with little if any apparent detraction from the desired beneficial effects. On the other hand, in certain cases when the adrenal substance fails to relieve certain symptoms which it may be expected to relieve, or after a period of time it appears to have lost its effectiveness, the addition of a certain amount of thyroid or iodine to the suprarenal medication will frequently bring about the desired relief. In certain condi-

tions such as vasomotor rhinitis, neither adrenal or thyroid gland alone will produce clinical results that will compare with what the two preparations together will do. Whether or not such seemingly antagonistic and interdependent action has anything to do with antihormones, I do not know. It would seem to me that the not unlogical place to find regulators of individual hormones, be they synergistic or antagonistic, would be in the endocrine glands themselves. The apparent establishment of tolerance to thyroid in thyroid intolerant individuals by the oral administration of suprarenal gland, and the apparent restoring of adrenal gland therapy effectiveness after it has apparently been lost by the addition of thyroid gland, would seem to be suggestive clues to say the least. Perhaps we are dealing with a matter of imbalance consisting of relative insufficiencies. In other words, by changing a lesser or greater activity of one part of the neuroendocrine chain to a greater or lesser activity, one may in turn require a compensatory stepping-up or a stepping-down of another part or parts before metabolic balance can be established or restored. Meanwhile, however the therapeutic results may be produced physiologically, of this I am sure clinically they do occur.

Epinephrin. One firm from whom I obtain supplies of adrenal gland tablets assays the epinephine content to be 4.3%. In asthmatic dyspnea this preparation acts when administered orally very much like epinephrin does hypodermically. The advantages of the oral method especially in children are obvious. Rarely after using the suprarenal gland in asthmatic attacks have I found it necessary to resort to epinephrin.

Suprarenal Concentrate (Armour). With the comparatively little experience I have had with the suprarenal concentrate I have found its use disappointing. Occasionally it has given temporary relief in vasomotor rhinitis, but even then it tends to lose its effectiveness. Also it appears to have a tendency to dehydrate and cause loss in weight which certainly is not desirable with undernourished children. The whole adrenal gland combined with iodine or thyroid has been much more dependable in my hands in relieving similar conditions than has the suprarenal concentrate. Furthermore, with the whole gland therapy the patient's nutrition tends to improve rather than the reverse.

Cortin. I have no experience with cortin. It is of interest, however, to note that some of the effects of whole suprarenal gland therapy are very similar to those which are reported to follow cortin administration. On the other hand certain other effects are like those of epinephrin.

UNTOWARD REACTIONS

Abdominal Pain. In certain individuals, particularly constipated ones, the adrenal gland material may produce an attack of abdominal pain very like that which may follow the oral application of the stronger solutions of epinephrin. As I have said before this reaction may be relieved or avoided by using smaller dosages in individual cases, or by combining atropine, iodine, or thyroid with the suprarenal gland therapy.

Vomiting. Certain infants and children, especially those with constipation or gastroenterospasm, may react to the adrenal gland preparation with more or less vomiting. This untoward effect may be avoided by taking the same precautions as one would to prevent abdominal pain.

Constipation. Enough has been said concerning the effect of the suprarenal gland upon gastrointestinal activity. For the sake of emphasis, I repeat here that this endocrine material may cause constipation or aggravate a preexisting one in certain individuals. Atropine, iodine, or thyroid usually inhibit this effect upon the bowel function.

CONTRAINDICATIONS

Decompensated Heart. Because of the apparent and probable antagonism of the adrenal gland substance to vagus action, one should use this glandular preparation cautiously, if at all, in cases with decompensated hearts, and at all times keep in mind a possible sympathetic overstimulation. The pulse rate should be kept under observation.

Nephritis. I have not as yet knowingly given suprarenal gland to a patient with signs or symptoms of nephritis. Because of its apparent antidiuretic action and a possible hypertonic effect on the blood pressure, I feel that its use would be unwise in nephritic unless future information should justify it.

Constipation. Because it may aggravate the condition and may produce abdominal pain and vomiting one should avoid using the adrenal gland preparation in obstinately constipated cases unless one or the other counter-active remedies such as atropine, iodine or thyroid are also given.

COMPARISON WITH SIMILARLY ACTING DRUGS

Atropine. Atropine acts similarly to whole suprarenal gland in that it may in certain cases allay coughs, pylorospasm, enterospasm; may be helpful at times in asthma; and may allay hypertonicity in some infants. On the other hand it differs in that it may increase or produce nervousness in some individuals, or may increase gastrointestinal peristalsis, whereas the adrenal gland has just the opposite effect. Furthermore, one does not obtain a reaction from the suprarenal preparation such as the hyperpyrexia which may occur with atropine.

Iodine. The chief way that iodine may be compared with suprarenal gland as a therapeutic agent is that both may be effective in relieving coughs or asthma in certain cases. Frequently by combining the two one may enhance the effectiveness of either one. Also, certain cases of congenital pylorospasm may react to iodine much like they will to atropine.

Phenobarbital. Phenobarbital is particularly beneficial in relieving the vomiting and abdominal pain of the pylorospasm and the gastrointestinal colic of infancy. And in many cases so is the adrenal gland. In fact frequently the endocrine substance may relieve cases which fail to respond to the barbiturate. Although the suprarenal preparation does seem to have some sedative action it does not compare in that respect with phenobarbital. Both preparations may be effective in relieving stubborn coughs in certain cases.

Calcium. Calcium, especially if it is given as a calcium iodide, acts very similarly but not so effectively as does suprarenal gland with or without iodine or thyroid in "colds," coughs, asthma, or eczema. Calcium also has a moderate sedative action; calcium also like the adrenal material tends to counteract toxic reactions to iodine, without unduly inhibiting its desired results.

Ephedrine. Ephedrine acts much like suprarenal gland in asthma, but it does not have the same element of safety. The use of ephedrine is not without danger of alarming reactions. I have seen no such effects from enormous single doses (accidental) of the adrenal gland, nor have I observed any injurious effects from repeated therapeutic doses of the endocrine material no matter how long they were continued. With the disorders other than asthma in which the endocrine treatment may be quite useful, ephedrine does not seem to be so helpful.

Benzedrine. Although favorable reports have been presented as to the effectiveness of benzedrine in spasmodic disorders of the gastrointestinal tract, I have had no experience with it in such conditions. It does seem helpful in upper respiratory disorders in certain cases. However, if one should choose to prescribe benzedrine he should keep in mind that the over-stimulation and increased nervousness of its untoward reactions is just the opposite of the quieting down action of the suprarenal gland.

Codein. Needless to say, codein may be quite effective in relieving certain coughs and attacks of asthma. It is not any more infallible, however, than is any other remedial measure. Frequently the suprarenal gland may relieve certain coughs on which codein seems to have no effect. Codein also seems helpful in certain "colds," in asthmatic dyspnea, in certain gastrointestinal disturbances, and as a sedative. It, too, has the advantage of being effective by mouth. At the same time, in larger doses it may produce the same kind of abdominal pain, vomiting and constipation as may the adrenal gland. At times the concomitant administration of iodides appears to enhance the effectiveness of codein.

Neosynephrin. Neosynephrin in my experience more nearly approximates the action of the suprarenal gland than does any other therapeutic agent. Its elixir may usually be depended upon to produce similar favorable results in similar conditions nearly as well, at times seemingly better, as one may obtain with the adrenal material. Furthermore, little if any untoward reaction follows the use of neosynephrin. At times I find it helpful to use it interchangeably with or as an adjunct to the endocrine therapy.

Aspirin. Aspirin is reported to be beneficial in certain "colds" and coughs and in certain cases of asthma. Its chief value with endocrine therapy is in assisting in counteracting untoward reactions to thyroid, particularly the hyperprexia.

Iron. I would not presume to suggest that suprarenal gland should have a direct stimulating effect on the hematopoietic system, but its action is like iron in that either preparation tends to inhibit iodism. Syrup of ferrous iodide is still a useful therapeutic agent.

Sulphur. Assays show that the adrenal prep-

arations contain 3.77% of sulphur. I have heard so often about the old-fashioned household remedy of sulphur and molasses for "colds" and coughs. Perhaps the sulphur content of the suprarenal gland is not an important factor in the therapeutic results. Probably it is too unscientific to mention, but I cannot help wondering about it.

Gold Tribromide. Considering the enthusiastic claims which have been made for it, gold tribromide has been disappointing in my hands. According to my observations it has given little relief in whooping cough cases. At least, in my experience, it cannot be depended upon nearly so much as can phenobarbital, neosynephrin, or the endocrine form of therapy.

DOSAGES

Infants. In acute conditions better results seem to follow suprarenal gland administration at 2 or 3 hour intervals. Like those of epinephrin its immediate effects appear to be of relatively short duration. In less acute conditions better results seem to occur if the treatment is given with meals. The better minimal dose for infants seems to be 0.03 (½ gr.) or occasionally 0.016 (¼ gr.) of desiccated whole suprarenal gland. The optimal or maximum dose appears to be 0.06 (1 gr.).

Children. The better dosages for children seem to be 0.06 (1 gr.) to 0.12 (2 gr.) of the desiccated whole gland at the same intervals as used for infants. In my hands, when thyroid is also used, it appears better to give half as much of thyroid as of suprarenal gland. According to information received from various colleagues, the proportion of thyroid indicated in the endocrine form of treatment seems to vary according to local climatic and environmental conditions. Very probably this may depend to a certain extent upon the iodine or other mineral content of the local water and food supplies.

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Jefferson Bldg.

DISCUSSION

Dr. J. W. Sours, Peoria: It is altogether true that frequently a lapse of time ensues between the introduction of a form of therapy and the discovery of the physiological basis warranting its use. Familiar examples of this are Withering's use of digitalis for cardiac failure and the use of ipecac in the treatment of amebic dysentery. Frequently one must knit together tangled skeins to secure evidence for rationalization of any therapeutic procedure. Frequently one must delve into comparative anatomy and embryology in the search.

The fetal adrenal gland is large chiefly because of the great development in the inner layer of the cortex. The adrenals rapidly decline to about one-tenth of their original weight shortly after birth. Some investigators have thought this decline to be due to too sudden withdrawal of the influence of the ovarian hormone, but there is no experimental evidence to bear this thought out. A rapid decline in tissue mass during the first few months of postnatal life, however, suggests that the adrenal gland plays a major rôle in intrauterine body economy and secondly that following birth some of the other ductless glands must take over its function. Might it not be surmised that in some of the conditions Dr. Barbour has mentioned, other endocrine glands have failed in taking over some of the functions of the adrenals, these functions as yet unknown and unmeasurable, and that in supplying whole suprarenal gland one is in a measure compensating for this lack?

Extracts prepared from the whole of the adrenal gland have proved to be more potent than those made from the cortex alone. There is some evidence that cortical substance is diffused into the medulla and is held there. The addition of adrenalin to cortical extract has also been shown to increase its potency in reviving adrenalectomized animals from coma. In this sense both portions of the adrenal work synergystically. This conception is reinforced by the fact that in Addison's disease an increased sensitivity to insulin exists. Whole suprarenal gland extract would, therefore, seem more logical in considering such an extract as a therapeutic agent.

Suprarenal cortex appears to have a controlling influence over electrolyte metabolism in general and sodium metabolism in particular. Those of you who have followed Kendall and Wilder's work with cortin will remember that a high sodium and low potassium intake is a very necessary procedure in treating Addison's disease. Potassium, considered ordinarily as an intracellular electrolyte, is retained in suprarenal insufficiency. Magnesium is also retained. Loewi showed that after vagal stimulation choline or one of its addition-modifications was liberated and that choline is to the parasympathetic system what adrenalin is to the sympathetic system. He also demonstrated that the potassium acted very much like vagal stimulation. Might it not be true that some of the conditions Dr. Barbour has mentioned will be found, in their ultimate analysis, to have a background linked with sodium excretion and potassium retention?

A profound influence is exercised by the cortex on allergic states. The effect of the medulla is too well known to bear repetition. Fluid in the blood vessels cannot be retained without the cortical hormone and as a result anaphylactic reactions and edemas occur in various parts of the body. Is it reasonable to assume that a modification of water balance between tissues and tissue fluids may occur in certain diseased states and through a perversion of function bring about alter-

ations in mucous membranes, such alterations being snuffles, head colds, chest colds?

The adrenal glands have a well marked detoxifying action. This is demonstrated by their ability to detoxicate snake poison and tetanus toxin in vitro. Much of this thing we call immunity is linked up with the lipoids and more particularly, cholesterol. The suprarenal glands exercise partly a formative and partly a regulatory action on cholesterol. It might well be argued that in supplying the body with whole suprarenal gland we are favorably influencing so-called natural immunity.

The suprarenal gland has been shown to be a store house for vitamin C. Man has lost the power to synthesize this vitamin, although some of the lower animals are able to produce it at will from ingested food. The action of vitamin C on the cement substance between capillary cells, the action of vitamin C insofar as the hematopoietic system is concerned, is well known. It is not outside the realm of probability that some of the actions of whole suprarenal gland extract are related to the actions of vitamin C.

It is sincerely hoped that in the future experimental evidence will reinforce the tenets held forth in this paper for then perhaps it will be possible to fractionate whole suprarenal extract so that one may potentiate one desired effect and at the same time minimize any untoward reactions mentioned. I believe that Dr. Barbour deserves congratulation for this very nice piece of clinical work.

Dr. Orville Barbour, Peoria: Nothing seems to be gained by giving dosages larger than 1 grain to infants. In children the maximum dosage is apparently 2 grains. The better intervals in acute conditions seems to be three hours or two hours. The thus apparent fleeting direct action makes me think that the epinephrin content has a good deal to do with the effects of the suprarenal preparation. In chronic conditions better results appear to follow the administration of the glandular material with meals. Preparations of Parke Davis and Co., and Eli Lilly and Co., have seemed to give better results than have those of other pharmaceutical firms. Why this should be so, I cannot explain.

A NEW METHOD OF STABILIZING WEAK JOINTS

L. W. Schultz, M. D.

CHICAGO

Restoring weak joints to normal usefulness has long been a problem in medicine. The method I am about to describe is applicable to any joint, for in my experimental work on animals I used this method on various joints and found the same results that I obtained in the joint I am particularly interested in, namely, the temporomandibular joint.

Subluxation of the temporomandibular joint is, comparatively speaking, a frequent occurrence. The causes are numerous and well known. There may be a congenital weakness or misshapen condyles—one or both; strain may cause it, strain during an operation in the mouth or throat; yawning is a factor and attempts by children to insert large objects into the mouth, positional pressures may be added.

The resulting weak joint may be painful. An annoying snap or click is often present or dislocation.

In the past, treatments have been disappointing or only partially successful. The best treatment known today is rest. Surgery has been attended by some success, physiotherapy with less. The former consists of mattress sutures passed laterally through the capsular ligament, or the meniscus may be removed. Mechanotherapy is applied in the forms of orthodontic appliances, prosthetic devices, changing the occlusion of the teeth or pads held under pressure against the condyles.

Knowing the limitations of these procedures and knowing that the cause was a weakened capsular ligament, I concluded that the production of a fibrosis in the ligament held the secret to the treatment of greatest promise. This, then, led me to find the most successful fibrogenetic agent used in other operations such as in varicose veins, hemorrhoids, hernia, etc. I found that Rice had used sodium psylliate for hernia with satisfaction after the failure of many others. I did not try this agent alone. I tried a number of others but this report deals only with sodium psylliate.

In my experiments on dogs I tested it in various joints including the mandibular. I sought its effect on vital organs, in the blood stream, in the peritoneal and pleural cavities. It seemed to produce no untoward results anywhere. When applied to abraded surfaces of the liver it stimulated fibrosis.

Within the temporomandibular as within other joints, no injury to the structures was visible either grossly or microscopically, either immediately or at autopsy. In all cases, however, fibrogenesis occurred. In this investigation dogs were used and many hundred microscopic sections were made and studied.

Normal care should be exercised in making the temporo-mandibular injection because of the many important structures in the condylar area

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such as the internal maxillary and carotid arteries, the middle and internal ear, the brain, parotid gland, facial nerve and so forth. The immediate reaction to the injection is a sense of fullness, which may be followed by pain within 20 to 30 minutes. This is of short duration and may be allayed with a sedative or anodyne.

During the past year I have treated more than thirty-five persons with results that approach complete satisfaction.

My conclusions are:

1. Sodium psylliate is a dependable fibrogenetic agent.
2. It is non-injurious to tissues generally.
3. It produces no systemic disturbance.
4. The fibrosis obtained in the temporomandibular joint is persistent.
5. It is employable by the general practitioner.

DISCUSSION

Dr. Austin A. Hayden, Chicago: I have appreciated Dr. Schultz's presentation very much, and I have appreciated it because it comes pretty close to home. I had a case of this sort very shortly after Costen of St. Louis presented his paper before the last yearly Laryngological Section of the A. M. A., in which he approached this matter very differently from Dr. Schultz. This woman had an edentulous mouth, a facial paralysis following the mastoid operation—which I did not do—and she had recurrent dislocation of the lower jaw, with a continuous pain sometimes excruciating in character, radiating into the right side of the head and pretty definitely localizing in her ear. She felt that not all the mastoid had been taken care of. Dr. Costen, to whom I sent her, had the lower jaw built up with dentures and proper occlusion made—a bite fitting set of teeth, and she had complete relief. She lived in St. Louis, incidentally. Dr. Schultz's method is a very much simpler one. It can be used by any nose and throat man, and we are very much indebted to him for bringing it before us. It is nice to see his father here, too—one of the first oral surgeons of Chicago. We have all seen a number of edentulous patients upon whom operation has been performed who have dislocation of the jaw. I believe such cases are candidates for stabilization of the temperomandibular joint.

Dr. Harry Pollock, Chicago: I would like to ask one question: Is it possible to get so much fibrosis that you create an ankylosis?

Dr. L. Schultz, Sr., Chicago: A great many of these sclerosing agents have been used. My son has investigated them all and found them wanting—except this one. One thing he did not bring out for lack of time, that I believe should be mentioned, is that this agent is the only one that fills the requirements he demands. In edentulous jaws we have a condition that does not yield to sodium psylliate, also in cases where the occlusion has become too close, where the teeth are worn down. Hence the use of this remedy is always preceded by a clinical and x-ray examination of the patient in order to establish these things. And the point should be stressed, to keep from making injections where they are not indicated. What happens in the joint after the solution has been injected into the joint cavity? Nothing happens in the joint itself. It does not attack synovial or serous membranes. At the present time we do not know how long the fibrous tissue, desposited in the joint ligaments, lasts; if it is a year or two, it is long enough for the joint to recover normalcy.

Dr. L. W. Schultz, Chicago (closing): In answer to Dr. Ford's question, I inject from four to eight drops of a 5% sodium psylliate solution into the joint cavity at weekly or biweekly intervals. I have deliberately and repeatedly tried to produce ankylosis in animals, but there is no ankylosis. There is no destruction of tissue, which I think prevents ankylosis. This procedure is absolutely new, and at meetings where I have presented it, the question of ankylosis was always raised. The results are so spectacular that one can hardly conceive how it produces the change in so short a time.

Dr. J. J. Callahan and I are using this same solution on joints elsewhere in the body, shoulders, knees, wrists, etc. I believe it to be of use in the treatment of weak sacroiliac joints, although I have not yet tried it on that joint.

To C. A. Searle & Co., who furnished me free of cost all the sodium psylliate necessary for my experimental work, I feel indebted and thankful.

OXYGEN CONTENT OF THE BLOOD DURING THE NEW TREATMENTS FOR SCHIZOPHRENIA

A Preliminary Report

JULIUS STEINFELD, M. D., and L. GERBER, Ph. D.

PEORIA, ILLINOIS

The Freudian school holds the view that schizophrenia is to be understood as a continually regressive process, which is most clearly seen in catatonic stupors. One sees in this stage a complete autistic personality, isolated from the environment, comparable to the prenatal stage of life. Data on humoral conditions at this stage of regression are rare. An important paper bearing on this subject is that of Haselhorst and Stromberger,[1] who showed in a large series of careful studies that the transformation from the prenatal (complete autistic) to the postnatal phase is characterized by a sudden marked increase in the oxygen content of the blood: the average value for the venous blood of the fetus retained in utero (no uterine contractions; cesarian section; lumbar anesthesia) was 3.97 volumes per cent.; in the new-born child before

From the Michell Sanitarium.

the first breath was taken the oxygen content of the venous blood was 3.4 volumes per cent. and that of the arterial blood 10.14 volumes per cent. After birth, values for the oxygen content of the blood increase to the normal range for venous blood of from 10 to 15 volumes per cent. We cannot as yet definitely prove a correlation between the oxygen conditions of the blood of the prenatal phase and that of the autistic schizophrenic state. Yet it is striking that some of our chronic schizophrenic patients showed very low values for the oxygen content of the blood —even as low as 3.8 volumes per cent. in one case (D.S.), which is barely compatible with life.

The following figures illustrate the low oxygen content in some cases:

	Oxygen Content of Venous Blood at Fasting Level, Vols. Per Cent
D.S. Hebephrenia of ten years' duration.....	3.8
F.G. Hebephrenia of five years' duration.....	5.6
T.V. Catatonia of one year's duration.....	5.8
H.T. Hebephrenia of five years' duration.....	6.0
R.H. Schizophrenia of seven years' duration..	7.8

These findings are in agreement with those of Segal and Hinsie,[2] who found in some of their schizophrenic patients values as low as 4.48 and 4.57 volumes per cent.

As concerns the reversibility of the schizophrenic process, spontaneous remissions with full recovery are well known, and this is in agreement with the lack of consistent significant anatomic changes in the brains of schizophrenic persons. Therefore, one is led to the thought that the causative agent of the disorder may be a function of humoral disturbances of a reversible nature.

Observations made on thirty-two patients (some of whom have previously been reported on[3]) who were treated within the last eleven months in this sanatorium* have been similar to those of other investigators in this field; that is, the insulin treatment of Sakel[4] and the convulsion treatment of Meduna[5] lead fundamentally to the same results. Because of the essential difference in the nature of the drugs insulin and metrazol, one must look for a common effect that will account for the clinical results obtained. On recalling that the carbon dioxide treatment for schizophrenia of Loevenhart and his co-workers,[6] used and abandoned several years ago, produced temporary and, occasionally, permanent lucidity such as is seen in insulin and metrazol treatment, it occurred to us that the effectiveness of all these treatments was to be looked for in the gas equilibria. This postulate is supported by the recent work of Himwich,[7] who found that in hypoglycemic dogs the venous blood returning from the brain resembles arterial blood in color, and by Freeman[8] and Hoskins,[9] who considered the possibility of a disturbed gas metabolism in schizophrenia.

In our investigation the oxygen content of the blood was determined by the method of Peters and Van Slyke,[10] using their volumetric apparatus. Speciments of venous blood were taken from the patient in the fasting state before administration of the drug, during coma in the case of insulin, and during the seizure in the case of metrazol, and also in the following period. In a few instances the carbon dioxide content, the blood sugar and the volume of packed cells were also determined. Since this is a preliminary report, only a part of the data will be given. More complete protocols including figures on the oxygen content of arterial blood, oxygen capacity, etc. (up to this time 172 gas analysis) will appear in a subsequent paper.

Ralph H., aged 28 years; white. Diagnosis: third attack of paranoid schizophrenia; first attack eight years ago.

Table 1.—Data on Ralph H., Obtained During Treatment with Metrazol

Date	Time	Patient's Condition	Oxygen Content, Vols. %	Blood Sugar, Mg. per 100 Cc.	Vols. of Packed Blood Cells
4/14/37	7:00	Fasting	7.8	...	...
	10:00	End of convulsion after metrazol	3.3	...	...
	10:15	Patient relaxed	18.6	...	...
4/20	7:00	Fasting	9.4	...	...
	8:00	End of convulsion after metrazol	1.3	...	...
	8:15	Patient relaxed	16.3	...	...
	9:15	Patient resting	19.3	...	...
4/27	9:40	Fasting.....			
	10:00	End of an incomplete convulsion (no asphyxia)	3.02	75	50
	10:16	Awake; relaxed	9.8	78	...
	11:30	Resting	6.8	69	48
	1:30	Resting	12.0	69	47
4/30	9:50	Fasting	11.0	93	47
	10:00	End of convulsion...	0.85	98	58
	10:15	Relaxed	15.3	103	52
	11:15	Fasting and resting..	14.4	64	49
	1:15	Fasting and resting..	14.0	77	53
	3:00	Fasting and resting..	14.0	83	55
	5:15	Fasting and resting..	13.2	78	...

*With the assistance of Drs. S. Burton, R. Cohen and H. Korey.

Table 1 shows a profound drop in the oxygen

content of the blood at the time of the seizure, with an immediate rapid rise, which in several instances far exceeded the initial level. A moderately high level of the oxygen content may persist several hours. The magnitude of the rise following seizure is conditioned by the intensity of the seizure. Thus, it is seen that a light seizure, such as occurred on April 27, was followed by a slight rise and fall of oxygen, with a second inconsiderable rise. Indeed, after this treatment the mental condition of the patient became worse. In this regard it is interesting to note Meduna's observation that mainly deep seizures result in clinical improvement. No correlation between the oxygen and the sugar content of the blood could be found. Variations in cell volumes were checked by hematocrit readings. These proved to be inconsequential. The carbon dioxide content during treatment ranged from 60 to 64 volumes per cent. Only immediately after the seizure, when the patient showed cyanosis and asphyxia, the carbon dioxide content rose to 80.6 volumes per cent, and it dropped when the patient was again breathing normally.

Martha E., aged 28 years; white. Diagnosis: catatonia of fifteen months' duration.

Table 2.—Data on Martha E., Obtained During Two Treatments with Insulin and One Treatment with a Combination of Insulin and Metrazol

Date	Time	Patient's Condition	Oxygen Content, Vols. %	Blood Sugar, Mg. per 100 Cc.
5/21/37	7:45	Fasting	9.8	...
	11:00	Coma	10.2	...
	12:00	Deeper coma	16.7	...
	12:15	Awake after intravenous injection of dextrose	11.8	...
	1:30	Again hypoglycemic administration of dextrose by mouth	14.6	...
5/23	7:45	Fasting	12.7	80
	11:05	Coma	20.2	50
	12:05	Deeper coma	23.6	40
	1:25	One hr., 15 min. after sugar by nasal tube	10.9	72
	4:45	Awake	8.4	80
5/24	8:30	Fasting; no treatment on this day.....	10.1	82
	11:00	Still fasting	12.2	95
	12:20	One hr., 10 min. after sugar by mouth...	7.3	113
5/31	7:20	Fasting	Sample lost	
	8:20	Light coma 1 hr. after insulin	12.4	...
	11:05	Coma	14.1	...
	11:07	Injection of metrazol.	...	...
	11:08	End of slight seizure.	8.9	...
	11:28	Coma	17.8	...
	12:15	Coma	11.0	...

The data in table 2 show that deep insulin coma is accompanied by a marked rise in the oxygen content of the blood. The lowest values for blood sugar coincide with the peak of the rise in the oxygen content. The rise in oxygen content (5/21) of from 11.8 to 14.6 volumes per cent. after the treatment was discontinued was caused by a secondary hypoglycemic reaction, which occurred with relative frequency in this patient.

It is especially to be noted in the treatment on May 31 that light insulin coma resulted in only a slight rise in oxygen content but that the seizure following the administration of metrazol produced a considerable increase in the oxygen of the blood. This suggested an advantage in combining the two drugs. Subsequent experience with the combination has proved promising. The details of these treatments will be presented in a later paper.

Frances G., aged 26 years; white. Diagnosis: Hebephrenia of seven years' duration.

Table 3.—Observations on Frances G., Made During Two Treatments with Insulin

Date	Time	Patient's Condition	Oxygen Content, Vols. %	Blood Sugar, Mg. per 100 Cc.	Vols. of Packed Blood Cells
5/26/37	8:00	Fasting	5.6	73	47
	12:15	Deep coma	16.7	50	48
	2:30	One hour after sugar by nasal tube, patient awake	8.20	87	48
6/1	8:00	Fasting	7.6	81	...
	12:00	Deep coma	14.6	50	...

Again, we found a marked rise in the oxygen content of the blood occurring with deep insulin coma. A striking feature in this case was the very low initial level of oxygen in the blood. The oxygen capacity of the blood in this patient did not seem to be impaired, as shown by the values of 16.7 and 14.6 volumes per cent obtained during coma. Further observations on the oxygen capacity are being carried out.

COMMENT

It has been observed that during the shock treatment of schizophrenia there is a consistent increase in the oxygen content of the blood. This increase follows the administration of the two drugs, insulin and metrazol, and appears to be the effective therapeutic mechanism common to both. It has also been noted that some schizophrenic patients whose illness has lasted as a chronic process for many years show very low values for the oxygen content of the blood.

Noteworthy in the data presented is a steady rise in the initial fasting levels of the oxygen

of the blood in the course of the treatment. This suggests that clinical improvement may be reflected in a gradual increase in the values for the blood oxygen. Furthermore, we think that in measuring the oxygen values during daily treatments we have a laboratory indicator for the effectiveness of the treatment as administered to the individual patient.

Since we see that these treatments which produce an increase in the oxygen content of the blood result in clinical improvement, we were led to the opinion that in schizophrenia there is a derangement in the gaseous exchange of the organism. From this point of view can be explained the reversibility of this illness, in which no consistent anatomic lesions have so far been reported. Many questions remain unanswered: has the brain cell lost the ability to remove oxygen from the blood stream, or does it require a much higher level of oxygen concentration in the blood for normal function? Is there a temporary or permanent change in the oxygen capacity of the blood of the schizophrenic patient? Are there changes in the oxidation-reduction systems in schizophrenia?

There is now a new point of view in approaching the psychoanalytic theory, in which schizophrenia is regarded as a process of regression, by drawing on the apparent parallelism of the gas equilibrium in the new-born at parturition and that during the treatment of schizophrenia. To this we add the observation that activation of archaic portions of the brains of schizophrenic patients during insulin treatment (the "activated psychosis" of Sakel) demonstrated by certain motor and tonic manifestations, is accompanied by an increase in the oxygen content of the venous blood. Investigation to clarify other factors pertinent to the problem is being carried on.

The authors gratefully acknowledge the fine technical assistance rendered by Miss H. Wolf in this investigation.

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After the manuscript was submitted, the article by Himwich, Bowman, Wortis and Fazekas in Science, 86: 270, (Sept. 17, 1937) came to our attention. They report a similar change in gaseous metabolism in their patients undergoing insulin shock treatment, using blood obtained from the internal jugular vein where they have found the increase of oxygen. They referred such changes to a diminished oxygen utilization in the brain, notably in the cerebral hemispheres. Since our findings were made on blood obtained from the cubital vein we must assume that the increased oxygen content in the venous blood during insulin shock is general and not limited to any particular vein. Furthermore, it is difficult to harmonize a correlation of oxygen utilization with lack of blood glucose with the findings during metrazol treatments wherein increased oxygen content of venous blood is not associated with hypoglycemia and lasts several hours beyond the time of unconsciousness.

INJURIES OF THE SEMILUNAR CARTILAGES

Ralph M. Carter, M. D.
Green Bay, Wisconsin

In view of the mass of literature which has appeared during the past few years on injuries to the semilunar cartilages of the knee, it would seem that there would remain very little to be said on this subject. This is probably true; nevertheless, these injuries are important, and are constantly with us; another paper dealing with them, therefore, even though it contains nothing new, if it should be fortunate enough to give rise to thought and discussion on semilunar cartilage injuries, has some justification for its presentation.

My experience in industrial and traumatic surgery covers a period of more than twenty-five years; during this time, I have performed arthrotomies on a sufficient number of knees to make me feel justified in drawing certain conclusions, and I have examined a great many more than I have operated upon. It is upon this experience that these few brief observations are based.

Injuries to the semilunar cartilages are important, not only from the point of view of the

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surgeon, but also from that of the medical man or general practitioner, who in most cases sees them first. They are fairly common, and are often overlooked. They occur frequently, although by no means exclusively as industrial accidents, and since they are highly disabling when untreated, are important from this angle. There is no condition in which proper treatment, when the indications are clear, gives rise to more gratifying results. And finally, there seems to be a misconception in the minds of many practitioners in regard to the results of treatment. Strange as it may seem at the present day, "my doctor told me not to allow anyone to operate on my knee, because the joint would get stiff," is a statement which is frequently heard when examining these cases.

The anatomy of the knee joint and of the semilunar cartilages is familiar to this audience, and need not be gone into; likewise the influence of age, sex and other factors requires no discussion. Let it be remembered that the overwhelming majority of all injuries affect the internal cartilage; the proportion of external cartilage injuries to internal ones is given by various authors as from 1 in 10 to 1 in 34.

In the great majority of cases, there is a history of trauma affecting the knee. A structural iron worker strikes his knee against a beam; a garage mechanic, while pushing a car on the floor of the garage twists his knee; a farmer, while ploughing, makes a misstep on rough ground; a young man is injured playing football; a motorcycle policeman's foot slips violently from the pedal while cranking his machine; a laborer carrying a heavy weight steps on a loose stone, etc. All of these various accidents possess one attribute in common, and that is, they are all essentially comparatively mild. It is not the more severe injuries, with damage to the bony and ligamentous structures of the joint, which give rise to disturbances of the semilunar cartilages, but the slighter strains which frequently appear to be relatively insignificant. A second attribute which most of these accidents possess is the presence of an element of torsion at the moment the injury occurs; in other words, the foot and leg are fixed, and the active force has a tendency to twist the leg about a longitudinal axis. I think that this is an important point in arriving at a diagnosis, and one which should be kept in mind in taking the history.

In these cases, if satisfactory results are to be obtained, a correct diagnosis previous to the operation is of the utmost importance. This statement is not to be taken to mean that this is possible in every case, for such is not true. Even Sir Robert Jones with, his great experience, made the statement that he was never surprised, in operating on a knee joint for injury to the semilunar cartilages, to find that his diagnosis was wrong; but the fact must be emphasized that each case must be exhaustively studied by every means at our command before urging operation with the assurance that this will result in a cure. This is particularly true of industrial cases. If the indications are clear-cut and definite, the results of operation will in all probability be very satisfactory; if the indications are indefinite, in many cases, the results will be disappointing. Here again, a qualification of this statement is necessary: there are undoubtedly cases in which an exploratory arthrotomy is justified; in such cases, however, the patient should be made to fully understand that the operation is exploratory in nature, and that under the circumstances, definite improvement may not follow and should not be too confidently expected. If the case is an industrial one, these things should also be made clear to the insurance carrier.

In arriving at a diagnosis and conclusion to operate in these cases, the first factor of importance is a careful and painstaking history. As has been said, in most cases the injury will be found to have been a relatively unimportant one. The patient should be questioned carefully in regard to the exact manner in which this injury occurred, and the forces acting at the moment of injury should be analyzed if possible. In the majority of cases, the history which will be obtained will be that the patient bumped or twisted his knee in some way; following this, occasionally the joint may have locked immediately, or it may later have become very painful. If locking took place, the history will often reveal that this was relieved after manipulation by a fellow-workman; however, the joint remained painful, and as the result of a rapidly increasing effusion, became much swollen. There was a temporary total disability of from a few days to a couple of weeks, following which the patient returned to work. After a longer or shorter interval, another attack of locking may have occurred, followed by pain and swelling in the knee, and another

short period of temporary total disability. If the case has persisted over any considerable length of time, the attacks of locking have usually become more and more frequent.

This triad of symptoms, pain, swelling and dysfunction, is very characteristic. Unfortunately for certainty of diagnosis, however, locking of the joint is very frequently absent, and such cases require very careful consideration of the history, close weighing and evaluation of all signs and symptoms, and the exclusion, so far as possible, of injuries to other components of the articulation which might give rise to similar signs and symptoms.

Physical examination of the knee itself should include comparative measurements of the opposite knee, and the affected knee will usually be found to be slightly larger than the uninjured one, due to the presence of a greater or lesser amount of fluid in the joint, although in the chronic cases, fluid is often entirely absent. The knee is palpated to determine whether or not any free bodies can be felt, and also to detect the presence of tender areas. One of the most constant findings in cases of cartilage injury is the presence of a circumscribed point of tenderness at the site of attachment of the anterior end of the cartilage. The range of motion is determined by manipulation. Naturally the presence of concomitant signs of joint injury, such as thickening of the synovial membrane, abnormal mobility, atrophy of the quadriceps femoris, etc., will be noted.

In the examination, the taking of x-ray films should never be neglected. In cases of cartilage injury, the films are practically always negative. That is to say, if the joint is otherwise healthy, with simply a detached or injured cartilage, no x-ray evidence of this will be found. If the case is an old one, occasionally lime salts have been deposited in the detached cartilage, which then becomes visible; such cases, however, are rare. I have not been fortunate enough to see one. Efforts have been made to visualize the cartilages by distending the joint with air or other gases, and this method of procedure has seemed to have been somewhat successful in certain hands. I have tried it in a few cases, but so far, my personal experience has been too limited for me to express any opinion either as to its value or inocuousness.

Nevertheless, the x-ray films in certain cases may give valuable information as to the presence or absence of osteoarthritic changes within the joint. If such changes are present, and the signs indicating cartilage injury are more or less equivocal, caution should be exercised before recommending operation, because the results might be disappointing to both the patient and the surgeon.

In the treatment of semilunar cartilage injuries, the question as to whether conservative or operative measures should be employed should not present much difficulty. The only form of therapy which offers any reasonable hope of permanent cure, especially in the recurrent cases is operative. It is true that it may be well, in cases of very recent injury, seen immediately after the accident to try the effect of conservative treatment for a short time. This should be done by putting the knee at absolute rest, by the removal of effusion if this does not subside spontaneously within a short time, and by tight bandaging. Occasionally a case will be encountered where such treatment will be followed by complete recovery with no recurrence of symptoms. However, such cases are the exception, and not the rule.

If after this treatment, the patient returns to work, and soon begins to have a recurrence of symptoms, I can see no reason for delaying operation. As a matter of fact, the sooner operation is performed in those cases in which it is indicated, the better. Changes in the interior of the joint will not be so marked, and recovery will be much more complete and rapid.

In all cases, the indications for operative treatment should be as clear as possible. An arthrotomy of the knee-joint is a procedure not to be lightly undertaken, as it is distinctly a major operation. Every case must be thoroughly studied, and the diagnosis must be made as accurately as possible before operation is advised. Otherwise there is likely to be a dissatisfied patient and an embarrassed surgeon.

Turning now to a consideration of the operation itself, it must be emphasized that for successful results, a rigorously aseptic technic is absolutely necessary. The statement has been made by Timbrell-Fisher that "a stiff knee after an operation for internal derangement is a reproach. Resulting loss of limb is a surgical tragedy; whereas loss of life from the same cause is a surgical disaster."

The patient should enter the hospital 48 hours previous to the day of operation. The day of entrance, a careful surgical preparation is made of the operative field, which is repeated on the following day, and which is carried out for a third time after the patient is on the operating table. All operations are done under a tourniquet. In my work, I have abandoned the use of the small curved incision frequently employed. The more of these cases I see, the more I appreciate that there is frequently associated pathology which can be easily overlooked through the small incision: consequently, I now use the long internal or external lateral incision, depending upon which cartilage is affected.

The damaged cartilage is removed in its entirety, a proceeding which offers no difficulty with this exposure. The joint is then carefully explored, not neglecting the suprapatellar pouch, in which foreign bodies are often found. During the entire operation, nothing except sterile instruments is put into the joint; there is no occasion for inserting the fingers. Likewise, with a properly applied tourniquet, no sponging is necessary. If it does become necessary to sponge, only wet gauze is used, and this very gently. The amount of postoperative effusion, in most cases, depends directly upon the amount of trauma inflected upon the articular cartilage and synovial lining. At the conclusion of the operation, closure by layers follows.

After the dressings are applied, a thick layer of absorbent cotton is placed entirely around the knee, and a tight bandage is applied. This furnishes an elastic compression. Not until all this is done is the tourniquet removed.

I use no splints or plaster casts after the operation, having discarded them a long time ago. They serve no useful purpose, so far as I can see, because immobilization is not desirable in these cases. For the first few days, there is usually so much discomfort that the patient will carefully avoid motion as much as possible; as the pain and soreness subside, he will gradually begin to move the joint himself, which is eminently desirable. From the second day, patients are urged to move the patella by alternately contracting and relaxing the quadriceps muscle as much as they are able. Morphine is given freely for the first few days, as there is always a great deal of pain immediately after the operation.

The question of postoperative effusion is in most cases directly dependent upon the amount of trauma inflicted upon the interior of the joint at the time of operation. However, some joints will react more than others, and at times, even after the most gentle handling, effusion will occur. Ordinarily, this soon subsides, being moderate in amount; if it is excessive, I have no hesitation in tapping the joint and removing the fluid.

Ordinarily, the sutures are removed on the eighth or ninth day, and this constitutes the first dressing, unless there is some indication to the contrary. Upon removal of the sutures, the cotton wrapping is discarded.

The patient is allowed up in a wheel chair whenever he feels so inclined, which is usually some time during the first week; all the weight bearing which the patient can stand with crutches is begun on the tenth day, and he is encouraged to bend the knee as much as he is able. Most patients are able to resume their ordinary occupations at the end of six to eight weeks, although more time may sometimes be required in the case of older individuals.

THE TREATMENT OF HYPERTENSION WITH SPECIAL REFERENCE TO THE NEWER KNOWLEDGE OF THE CAUSES OF HYPERTENSION

S. KENNETH ROBINSON, M. D.
CHICAGO

If we are to judge from the large number of cases seen in the clinics and from the opinions of older physicians, hypertension is increasing in frequency and the etiology and treatment becomes a challenge to the medical profession. Patients with hypertension are often neglected in our hospitals and clinics or left entirely to their own devices; such treatment as is given is often indifferent or merely routinistic. Yet there is hope that hypertension and other diseases of a vascular nature will in the near future receive the attention that they rightfully deserve; occasional signs point in that direction. In spite of the gaps in our knowledge about this disease, there is much that is known and one of our chief problems is to disseminate our present knowledge and to cultivate interest. At the present time, hypertension must be considered an incurable disease, yet the treatment is far from a thankless task and much could be done for

these patients, if they received the same care as do, for instance, diabetics.

The discussion of the treatment of hypertension will be divided into 5 parts:

1. The treatment of the associated or etiologic factors.
2. The action of drugs and diets on the blood pressure.
3. The treatment of the complications.
4. Other forms of treatment.
5. The results of treatment in 100 consecutive cases.

The Treatment of the Associated Diseases or Etiologic Factors.

In the treatment of hypertension it is important to consider the possible etiologic factors and any associated or aggravating condition that may be present. A full discussion of etiology is beyond the scope of this paper, the reader is referred to the works of Kylin,[1] Riesman,[2] King[3] etc. Hypertension is commonly associated with the following aggravating conditions most of which are considered etiologic by certain investigators: obesity;[5-6] diabetes;[7-11] thyrotoxicosis;[12-16] imbalance of the vegetative nervous system[17] and psychic factors;[18-20] the menopause[21] and less commonly with mitral stenosis[22-23] (rheumatic endocarditis). Often when the hypertension is associated with some such disease, the hypertension is relegated to the background or the blood pressure remains unrecorded for days or weeks. It is surprising to see the response in some of these patients when the whole picture is subordinated to the primary vascular phenomenon. Cerebral symptoms suggestive of tumor may disappear in a few days with dehydration treatment; epigastric distress often ceases to be a foreboding omen and vanishes as the circulation improves.

In the obese a reduction in weight will often cause a fall in blood pressure. A word of caution should be added about low calorie diets that are maintained too long, because avitaminosis or a negative calcium balance may result, therefore such ingredients should be added. Strang's diets are of value in this respect because mineral salts and vitamins are supplied. Thyroid extract is a dangerous drug to use in hypertension. Dinitrophenol is tabu.

The association of thyrotoxicosis and hypertension, which will be referred to as "thyroid hypertension" has been discussed by several investigators.[12-13] In this paper, it will be discussed together with imbalance of the vegetative nervous system and psychic factors because it is believed that there is a relation between these. Not enough work has been done on this subject to give proper guidance in the treatment but a few principles can be laid down. A B.M.R. should be taken on most men and all women who present themselves with hypertension. An elevated B.M.R. is undesirable in hypertension because it increases the blood velocity thereby putting an extra burden on the heart. There are several drugs to reduce the B.M.R., iodine,[24] diiodotyrosin,[25-28] tyronorman,[29-30] hamocrinin,[31-33] etc. The last two drugs I have had no experience with, they are used in Germany and the reports are good on tyronorman but the value of hamocrinin is doubtful. Iodine must be used with caution and if one is dealing with thyrotoxicosis secondary to oversecretion of the thyreotropic hormone of the hypophysis, which the syndrome "thyroid hypertension" may represent, iodine is best avoided because it may bring the picture of true Basedow's in the foreground and the disease may go over into it.[24-34] The drop in the B.M.R. is usually followed by a drop in pulse, but if the pulse remains elevated then quinine may be tried, in any event it is a valuable adjuvant. Riesman[2] claims good results for this type of case with corpus luteum extract. For the nervousness, tremor and fidgetiness, the bromides, belladonna, calcium and phenobarbital are of use. Phenobarbital appears to exert its action on the midbrain (diencephalon) which has assumed importance in thyroid disease and hypertension.[35] Scharrer and Gaupp;[36-37] also Voss[38] have called attention to a "zwischenhirndruse" (midbrain gland) because some of the cells contain colloid and because of its ability to store iodine in greater concentration than the rest of the brain. Speaking of the diencephalon leads us up to the importance of the vegetative nervous system in hypertension.[17-20, 39-44] Olmer and Carbonel[40] believe that without a disequilibrium between the sympathetic and the parasympathetic nervous systems it is difficult to explain hypertension because the autonomic system would compensate. Page[42] states that such symptoms as hot flashes, sweats, salivation and tachycardia are very suggestive of diencephalic stimulation with imbalance of the vegetative nervous system. He believes that this may be a factor in the production of

hypertension. Sunder-Plassman[43-44] demonstrated morphologically an intimate relation between the vegetative nervous system and the individual cells of the thyroid gland. There is also a center for the vegetative nervous system in the hypothalamus. Since the function of the sympathetic and parasympathetic nervous systems are so closely interwoven, it is difficult to conceive of a pure sympathitonia or vice versa, and in most instances we are probably dealing with a sympathitonia of certain organs and a vagotonia of others. Therapy directed at quieting all parts of the nervous system is therefore indicated. Ergotamine tartrate is a sedative of the sympathetic and belladonna acts similarly on the parasympathetic nervous system. These drugs can be combined with phenobarbital (bellergal) and are worthy of a trial in select cases. For the disturbing symptoms associated with the hypertension the results are often gratifying. In recent years, calcium has assumed considerable importance as a sedative of the vegetative nervous system. Several investigators[45-47] have reported excellent results with it. In treating patients with vasomoter disturbances Majerus[48] advises that belladonna be used first to be followed by calcium salts. Gloor-Meyer used calcium bromide in 60 cases of vegetative neuroses and hypertension and states that the nervousness, tiredness and exhaustion were quickly relieved. Chrometzka used calcibronat in hypertension and observed a drop in blood pressure in all cases, a drop of 80 points being occasionally observed.

The importance of worry, mental strain, anxiety and other psychic factors in producing hypertension has been demonstrated and such factors must play a very great part in the etiology. Reference is made to the works of Mühl[17] Fahrenkamp;[18] also Raab. The physician who undertakes to treat patients with hypertension must make an effort to uncover such mental disturbances and help correct them, otherwise all therapy will be useless. Mühl[17] cites a case of hypertension associated with nephritis following hyperthyroidism which resisted all treatment until a chronic state of anxiety was corrected after which the blood pressure dropped and the patient remained well for 3 years. Murray[20] claims that in men, neurocirculatory asthenia tends to go into hypertension later in life.

With such treatment the immediate results in the thyroid hypertension syndrome are often satisfactory; the pulse, blood pressure, the B.M.R. and the general weight curve are used as guides. However, the more severe cases may sooner or later require additional treatment in which case x-ray[49, 50] over the thyroid gland, hypophysis and the adrenals may be tried (v. i.). The value of thyroidectomy in this type of case cannot be evaluated at the present time because too few complete case histories are available. The few cases available show that results of thyroidectomy in producing a drop in blood pressure have been disappointing,* even so, in certain select cases, the good effects from a lowered B.M.R. may be of value. Against this must be considered the fact that thyroidectomy acts as a stimulus to the enlargement of the anterior pituitary as was shown by Rogawitsch.[51] Thirteen case reports[52-58] of the thyroid hypertension syndrome treated by thyroidectomy show that in 7 the blood pressure continued to rise after operation, there was a drop in the blood pressure in 3 cases and in 2 there was no change. One patient died as a result of the operation. This probably means that in the syndrome of "thyroid hypertension," the hypertension is not the result of a dysfunction of the thyroid gland, as is the opinion of certain workers, but that it is due to some other factor: as a matter of fact the thyroid dysfunction itself may also be secondary to this other factor. Whereas ordinarily thyroidectomy will arrest thyrotoxicosis, in these cases the disease appears to make progress in spite of the reduced B.M.R. and by eliminating the thyroid gland we are not getting at the seat of the disease. Hypothetically, this might be explained in the light of Kylin's recent view, that a causal factor in hypertension is oversecretion of the hormones of the anterior hypophysis, since excessive secretion of the adrenotropic and thyreotropic hormones would explain the thyroid hypertension syndrome. (v. i.).

Hypertension is occasionally seen with myxedema. Treatment for the myxedema is all that is necessary and the blood pressure will often return to normal. I have seen two such cases.

The Action of Drugs and Diets on the Blood Pressure. After the associated conditions have been properly cared for, the blood pressure will still remain high in many and should be brought down if possible. For this purpose, many drugs and diets are popular. Space does not permit a

*S. Weiso has reached the same conclusion, see note at end of this paper.

complete review of these drugs some of which have much to recommend them but a few will be discussed.

Iodides are very popular in hypertension. Burger and Mobius[59] have shown that the blood iodine is increased in hypertension and advise against its indiscriminate use. Weiss[60] claims that the use of *nitrites* is illogical and may be dangerous. *Digitalis* is advised by Fahr.[61] In the nocturnal cardiac asthma and where the history and physical findings are suggestive of myocardial weakness, digitalis should always be given a trial. Combined with calcium it works better; however, if the patient is digitalized, calcium by injection is contraindicated and should be given by mouth,[62] if at all.

Calcium and atropine were used with good results by Kylin but Altnow and O'Hare failed to confirm his findings. Bram,[63] also Schaefer[64] reported some good results with progynon and theelin in hypertension of the menopause. Stieglitz,[65] using *bismuth subnitrate,* observed a fall in blood pressure in 75% of his cases but Bruen's[66] results were equivocal.* *Mistletoe or viscum album*[67-70] causes a fall in blood pressure, also improvement in the tinnitus and vertigo. It is a mild drug and good to start with while a patient is being observed or where stronger drugs are contraindicated. *Pancreatic* extract was used by Halprin:[71, 72] also Santenoise and both claim a fall in blood pressure after its use. Halprin claims that it serves to detoxify the products of decomposition absorbed from the gastro intestinal tract. Althausen and Kerr[73, 74] observed a fall in blood pressure with the use of liver extract. They also speak very highly for *cucurbocitrin. Acetylcholin*[75] has only a transitory effect on the blood pressure but is of value in giddiness, spasms and defective vision. Barath[76] claims good results for papavarine in select cases. Hoegler et al.[77] were able to show that veronal was effective in reducing the artifically produced "Kaolin hypertension." (v. i.) Padutin[78-80] has an anti-adrenalin action and was shown to cause a fall in blood pressure. Riesman,[3] also Bryant[81] claim good results for *veratrum viride.* (v. i.)

The thiocyanates are a great therapeutic aid in hypertension.[82-89] Barker[82] advises a dose of 0.3 gm. daily of the potassium salt which is usually followed by a decrease in the nervousness and headache in 5 to 7 days, at which time the blood cyanate level is about 5 to 7 mg. per 100cc. A fall in blood pressure of 30-50 mm. is observed in 10 to 15 days. The dosage is then cut down to 0.3 gm. 3 or 4 times a week and when the blood cyanate level reaches 10 mg. the drug may be withdrawn. Barker treated 45 patients with the use of cyanates and only 10 failed to respond. Untoward effects marked by vascular collapse, weakness and cerebral thrombosis was observed in 2 cases with final recovery. However, several investigators[86] consider the thiocyanates toxic and too dangerous to use in the advanced cases.

Among the diets advocated in hypertension the low salt is deservedly most popular. A low salt diet of 1.2 gms. a day will reduce the circulating blood by 19%, a point to keep in mind in cases of pulmonary edema and congestive heart failure. Blaisdell[90] used a low salt diet on 35 patients keeping the urine chloride down to 0.5 gm. a day and the protein down to 80 gms. a day. There was decided relief from symptoms and a drop in the blood pressure and in some cases it remained down. Robert[91] claims that a low salt diet causes drainage and advises its use in hypertension, but he adds a word of caution about the possibility of uremia under such a regimen. Fahr[61] considers the low salt diet an excellent therapeutic measure and advises horse radish, pepper, vinegar and flavoring to make the food appetizing.

There is a widespread belief among lay people that excessive protein is undesirable in hypertension and kidney disease, and there may be some grounds for this belief.[92-95] It is known that in Germany during the war, when proteins and fats were scarce, that as a group the hypertensives and nephritics were benefited and the incidence of eclampsia was lessened. We know very little about this subject but if we can draw a general conclusion from recent articles in the literature, it might be said that there is a definite and important inter-relation between hypertension on the one hand and nutrition and intestinal intoxication on the other. A gastrointestinal influence on the blood pressure has been observed by several investigators. Mills observed that substances that detoxify the bowel contents cause a drop in blood pressure. Gehlen[92] in a study of 165 patients states: "ein abhangigkeitsverhaltnis der blutdrucklage von dem augen-

*In a late report Bruen got some good results with bismuth sub-nitrate.

blickes zustande einer magendarm affection bestand." He quotes Hirose et al. who were able to demonstrate a drop in blood pressure when large areas of the intestinal circulation were blocked. Halprin's[71-72] reference to toxic agents in the G. I. tract that might cause elevation in blood pressure has been mentioned. Further investigation along this line may produce some very interesting and useful information.

THE COMPLICATIONS

The complications of hypertension will be considered under: *endocrine, infectious, coronary, cardiac, cerebral, gastro-intestinal* and *renal.*

The *endocrine* complications have already been discussed in part and will be further discussed under "other forms of treatment." Infections are not a true complication of hypertension but may occur in its course. There is some evidence at hand that intercurrent infections influence the course of hypertension unfavorably. Raab;[97] Siebeck; also Barach[21] stress this point and the latter claims that the tonsils are often enlarged in persons with a constitutional tendency to hypertension and advises their removal. Siebeck claims that infections aggravate an existing hypertension and such patients should use necessary precautions.

Fahr[98] goes to some length to show that *coronary sclerosis* is very common in hypertension. He estimates the incidence at close to 90%. He uses ethylene diamine or other coronary dilators in nearly all of his hypertensives. This high incidence of coronary sclerosis has not been substantiated by other writers. Kirschbaum[99] gives the incidence as 38%. However, where it is suspected, the drug is certainly worthy of a trial.

The chronic *cardiac* complications are familiar and need not be considered here. For the acute cardiac failure which may appear suddenly 0.5 mg. strophanthin[100] may be given i. v. followed by 15 to 30 min. of digitalis every 4 to 6 hours. Hypertensives bear it well and when the heart is greatly enlarged it is particularly indicated. At this point it is well to mention the use in congestive heart failure of salargyn or the new mercurial diuretic, novurit, even when digitalis has failed. The latter can be given per rectum as a suppository. For the breathlessness, provided it is not due to asthma, morphine often acts like a specific.

Under *cerebral* complications we have beside hemorrhage, hypertensive encephalopathy and pseudo tumor (Foerster) a condition that closely resembles brain tumor. It is important that these conditions be kept in mind because these patients are occasionally needlessly operated on, Ellis advises in encephalopathy with convulsions, coma and even paralysis (which he says may occur without uremia and are of vascular origin) venesection as the sheet anchor in therapy and later the removal of spinal fluid until it runs like a slow drip. He also advises intravenous hypertonic salt solution and morphine. Magnesium sulphate may be given at first by mouth one or several ounces daily of 50% solution until the blood pressure drops, if comatose, then 2% by vein until the blood pressure, taken on the other arm, has dropped. If there is evidence of renal damage magnesium salts are contra-indicated in which case glucose 50% by vein may be given, but if it is used several times it is best to precede it by some dehydration measure as purgation. Since Bryant[81] has used veratrum viride so successfully in controlling the high blood pressure and convulsions in eclampsia, it is worthy of a trial in hypertensive encephalopathy. It can be given as veratrone (P. D.) 5 to 15 min. by hypodermic and repeated as often as necessary to keep the blood pressure down. For further details about this treatment the original paper should be consulted.

At this point it might be mentioned that cerebral edema should be kept in mind as a possible cause of drowsiness, sluggish mental activity and stupor so often seen in hypertension, and dehydration therapy[101] should be instituted. This treatment was used extensively at Temple University in cases of skull fracture, shock and eclampsia, etc., with very promising results. The treatment consists of spinal puncture, hypertonic solutions and purgation, with limitation of fluids and a dry low salt diet. Puppel[102] used a similar treatment in eclampsia with good results. For the details one must consult the original papers.

The *gastro-intestinal* (G. I.) symptoms in hypertension are of greater importance than is ordinarily believed. I have discussed these symptoms at another place;[103] they will be briefly mentioned here. A pathological condition in the alimentary tract such as ulceration in the form of peptic ulcer, gastric erosions or colitis, is quite

common in hypertension and with it goes the possibility of hemorrhage. The gastro-cardiac syndrome is seen, also a uremia syndrome which might be referred to as "gastric uremia" (Ryle).[104] Unfortunately the present treatment for gastric hemorrhage is discouraging, however, several new drugs have been mentioned in the literature and deserve a trial in the intractable cases. Vitamin C,[105-107] theelin[108] and calcium have been used with success in various types of bleeding. For the substernal pressure and the epigastric distress seen with the gastro-cardiac syndrome small doses of digitalis is often of value; for the flatulence and belching, valerian may be of use, also, charcoal. Gastric uremia is discussed under renal complications.

In the discussion of the *renal complications,* we shall limit ourselves to preuremia and uremia. Under uremia we must consider the "true uremia" due to renal insufficiency and extrarenal uremia. For the differential diagnosis reference may be made to a paper by Schoenborn.[110] A uremia syndrome may depend on several extra renal factors, such as: Gastro intestinal intoxication,[111] acidosis,[111, 112] salt deficiency,[111-113] pancreatic insufficiency,[114] excessive water loss,[111] post operatively, with severe gastro intestinal bleeding,[115] and in diabetic coma.[116] The true uremia is seen only in a small number of cases as a complication of hypertension and the treatment by use of restricted diets, elimination and rest has been widely discussed. However, in many cases the kidneys are normal or only partially damaged, and the extra renal factors may play the dominant role in bringing about the uremic picture and the fatal outcome. An attempt at diagnosis and treatment should always be made because if the patient is tided over the critical period recovery may ensue. Often such a syndrome is ushered in with nausea and vomiting with or without abdominal pain (gastric uremia).[113, 116-119] The urea N. is usually elevated but it may be normal[120] the course may be rapidly downhill with death in what appears to be uremia. It is possible that the loss of salt by vomiting is a factor in producing this picture.

As for the treatment against the nausea and vomiting gastric lavage is often efficient, bismuth with cocaine are of value, occasionally in select cases, salt infusions may work well.[121] (v. I.) Such patients should not be allowed to develop acidosis and the urine should be tested regularly and kept neutral or slightly alkaline by giving citrous fruit juices or a mixture of sodium and potassium bicarbonate; when acidosis is present, glucose should be given. Anuria is often present. In such cases, a reduction of plasma bicarbonate is usually found and a mixture of 2 grams each of potassium citrate and sodium bicarbonate with flavoring in an ounce of water given by mouth, one ounce per hour, has been found successful. Bannick and Keith[122] claim that in severe oliguria venesection alone or followed by an injection of 500cc. of 20% dextrose is of benefit.

Much has been written about uremia due to salt deficiency; the use of salt in this condition in common and much has been claimed for it.[123-125] In France, this is recognized as a common cause of uremia where it is termed, "uremie par manque de sel." However, to determine the presence of a true hypochloremia is difficult. Mellinghoff[126] states that in uremia due to hypochloremia as much as 100 grams of salt may be given before appreciable amounts appear in the urine, but this test can be accepted with reservations only. The blood chloride value may also be misleading because in the course of certain diseases the sodium and chlorine ions are not excreted in the urine in molecular proportions but sodium is retained and the chlorine excreted.[127] In cases of coma it is the migration of the sodium ion which is probably most important because under such conditions according to Keller[128] sodium ions enter the electropositive organs such as the liver, kidneys, brain and blood corpuscles. Obviously the blood chloride value gives no definite idea as to the amount or behavior of the sodium and the sodium may be retained because it is entering the electropositive organs in large amounts. Farkas[130] claims that in salt retention water should be given, in hypochloremia more salt, and in normal salt metobolism Ringer's solution. In hypostenuria, salt should be given because the kidney cannot dilute the urine when large amounts of fluids are given, and salt may be lost. Barath[131] believes that in preuremia the low blood calcium may lead to tetanic spasms and that the infusion of large amounts of salt solution may lead to eclamptic convulsions or high fever. Minder[132] claims that in certain cases of hypochloremia the azotemia may be corrected by salt; but when the hypochloremia is not primary but follows severe renal insufficiency, the salt therapy is useless and hastens the lethal

outcome. Csapo[133] states that there is a true hypochloremia and salt is of value in such cases, but there is also a pseudo hypochloremia where the chlorine passes into the blood corpuscles and salt is not indicated. That salt may actually be harmful has been demonstrated by Andrews on dogs and by Keller[128] who quotes Phlonm on 2 deaths resulting from salt infusions. On the other hand that salt is of definite value in certain cases of uremia has been amply demonstrated: but most authors evade the question of how to diagnose the true hypochloremia when it exists.

In the uremia due to intestinal intoxication Fantus[111] advises starvation for 1 day followed by a diet of 300 gms. of ripe bananas and 100cc. cream in A. M.: at noon 200cc. cream soup. 300gms. banana, and 200cc. milk, a total of 1335 calories. In 2 or 3 days follow by a lacto-vegetarian diet with large amounts of potatoes because of their alkaline ash. In the group due to hypohydration, lavage the stomach with 2% bicarbonate of soda and give by duodenal tube 1 or 2 liters of hot water at 110 degrees F. In uremic coma, he advises early venesection to be repeated in 4 days, and adds a word of caution against the use of blood transfusion. Dextrose solution to be given by vein and followed by lumbar puncture if there is no response. Schwarzman[134] claims that in the "uremia syndrome" (v. s.) the use of an extract from lung or pleura called "histosan" was found to give good results. Hammerschlag[135] claims that the use of liver extract in the extrarenal uremias, particularly those that come on after excessive water loss and post operatively, is often associated with striking results and in some instances may be life saving.

OTHER METHODS OF TREATMENT

The Role of the Brain Structures adjoining the third Ventricle, and the Vegetative Nervous System in the Etiology of Hypertension and the use of X-rays to these Regions:

There is some evidence that hypertension is associated with an irritation of the brain structures adjoining the third ventricle, which includes the hypophysis, centers for the vegetative nervous system, and centers for water and salt metabolism (according to Scharrer[136, 137] in the tuber cenarium) and this may play a role in the etiology of hypertension although other etiologic factors are thereby not excluded. In this connection, the work of Kylin;[138] Cushing;[139-144] Loeser[145] and others[146-157] is of interest. Kylin[138] considers that a causal factor in hypertension is the oversecretion of the hormones of the anterior lobe of the hypophysis: in other words hypertension is the antithesis of Simmond's disease in which there is atrophy of the hypophysis. The high blood pressure may then be due to an oversecretion of the adrenotropic hormone of the hypophysis which acts as a stimulus to the adrenals, while the increased B.M.R. so common in hypertension may be due to excess secretion of the thyreotropic hormone. An increased amount of the hypophyseal hormone (prolan) has actually been demonstrated in the urine in cases of hypertension also eclampsia by Lücke, Heim,[158] Bentivoglo[159] and others. Cushing's syndrome in which hypertension is associated with basophilic infiltration of the neurohypophysis has received much confirmation in the last two years and lends support to this view. The sex hormones, ovarian hormone in the female[160] and the hormone of the germinal epithelium in the male, are the antagonists of the hypophysis; and the fact that hypertension sets in so frequently during the climacteric when the sex glands begin to atrophy also draws attention to the pituitary. Loeser claims that with the slackening of the sex glands activity there is an increase in the thyreotropic substance of the anterior hypophysis through which an excitation of the thyroid gland may be called forth. In 1920 Berblinger[161] showed an increase in the basophilic cells of the hypophysis in cases of nephritis and in contracted kidney; this was supported by Skubiszewski.[162] The association of malignant nephrosclerosis with a basophilic adenoma of the anterior hypophysis was stressed by MacMahon, Close and Hass[162] and later by other investigators. Ahlstrom[164] found a basophilic infiltration of the neurohypophysis in 96% of his cases of hypertension and in only 50% of his non-hypertensive group. In a similar study, Marcano[165] found infiltration in the posterior hypophysis in 19 out of 49 of his hypertensives and in one out of 22 in a non-hypertensive group. Scriba[166] failed to substantiate these findings. Other investigators stress the importance of irritation of the centers of the vegetative nervous system as a cause of hypertension. Hoegler et al. were able to produce hypertension by injecting kaolin into the third ventricle (Kaolin hoch druck) and by injecting

irritating fluids into the third ventricle Marx produced hematuria and cylinduria. According to Marx[157] the cerebrospinal fluid from a nephritic patient if injected into the third ventricle of experimental animals will produce after a latent period, anti diuresis, hypertension and hematuria, this occurs after denervation of the kidney which indicates that a hormone is responsible. Marx further claims that the concentration of a pressor substance in cases of hypertension is much greater in the cerebrospinal fluid than in the blood which would indicate that its source is in the central nervous system. Page states that the symptoms of hypertension such as hot flashes, sweats and tachycardia are very suggestive of diencephalon stimulation and thinks that this may be a factor in its production. Draper;[167] Langer,[19] also Mühl[17] investigators who give more consideration to the constitution factor in disease, all suggest that irritation of the vegetative nervous system may be a cause in hypertension.

Without stressing this subject any further it should be apparent that there is enough evidence to justify such therapy as irradiation of the brain in the region of the third ventricle and the ganglia of the vegetative nervous system. Hutton[168-170] advocates irradiation of the hypophysis and the adrenals and claims good results in 75% of his cases. Similar results were reported by Jamin,[176] Werner[172] and others.[173, 174] Langer advocates also paravertebral irradiation. It is quite possible that the benefits from x-ray over the third ventricle are due more to the quieting action of the rays on the sympathicus rather than their action on the hypophysis. (Carullo et al[175] have shown that x-ray over the sinus carotis will also result in a drop in blood pressure.)

Surgery: Mention has already been made of the germinal epithelium of the tests and its importance in checking the secretion of the hypophysis. Niehans[176] claims that placing a ligature in the groove between the testes and the epididymus stimulates the germinal epithelium and is followed by very good results such as the disappearance of headache and vertigo, improvement in the circulation, a reduction of the arterial tension to normal and an improvement in the urinary disturbance. He has treated 400 cases with good results.

Decourcy, Decourcy and Thuss[177, 178] removed about three-fourths of both adrenals in 8 cases of hypertension. They reported a drop in blood pressure of 70 to 90 mm. systolic and 40-50 mm. diastolic in every case, and that the symptoms disappeared. Oliver and Meillere[179] removed the adrenal glands in three cases of hypertension, the results were unsatisfactory. Adson and Brown[180] did a bilateral section of the anterior spinal nerve roots from the sixth thoracic to the second lumbar inclusive. They claim that a drop in the blood pressure was observed after the operation. Graybiel and White[181] claim that the present surgical treatment does not rest on a scientific basis, and the decrease in vascular tonus consequent to destruction of sympathetic innervation is regained by regeneration of the nerves or by decreased susceptibility to circulatory hormones.

Iontophoresis (electrophoresis) has been used by a few investigators with favorable results.[182, 183] Doane used histamine iontophoresis in vasospastic states and has also observed a drop in blood pressure. Ehrenwald[185] has also observed a drop of 40 mm. in the first 5 minutes of treatment which endures 5 to 6 hours.

RESULTS OF TREATMENT

One hundred patients were selected who were observed from 6 months to seven years and who were under treatment long enough to be of value in this study. Of these 80% showed a fall in blood pressure shortly after treatment was begun. In the remaining cases, although the blood pressure was not influenced, relief from symptoms was in most instances experienced. This would indicate that in most cases of hypertension the blood pressure is not fixed but labile, and can be brought down at least temporarily by medication. In most instances when treatment was withdrawn, the blood pressure rose again but in a few cases the blood pressure remained down for months without any treatment. Various drugs were used and the treatment modified to meet the individual case. As our experience with these patients increases more attention is being given to the nutrition and well being of the patient, complications are cared for and more attention given to the associated symptoms and complaints.

Potassium thiocyanate was found to be a very reliable drug for reducing the blood pressure and for the relief of symptoms. It was frequently found effective when other drugs had failed

and failed only in a small percentage of cases. In a few others, it was so toxic that the drug had to be withdrawn. A fall in blood pressure of 70 mm. was not uncommon with the use of this drug. The drug should only be used in carefully selected cases.

Calcium was found a valuable adjuvant in the treatment and a marked drop in blood pressure occasionally witnessed. In these experiments, it was combined with belladonna or with digitalis depending on the case. For the associated symptoms, it was frequently resorted to, especially if they suggested an allergic basis. In one case with a blood pressure of 245 mm. systolic and severe nocturnal "choking" and shortness of breath, the combined use of digitalis and calcium by mouth for a period of 2 months caused a drop in blood pressure to 165 mm. and almost complete subsidence of the symptoms.

Phenobarbital produced a drop in blood pressure in a high percentage of cases but the fall was only moderate, usually from 10 to 40 mm. It is particularly valuable for the nervousness in the thyroid hypertension group.

Veratrum viride produced only a slight drop in blood pressure when given by mouth. On the tinnitus and giddiness it had a favorable effect. The drug appears to act in somewhat the same way as viscum album (mistletoe) and might be used to replace this more expensive product.

Digitalis in such cases as has previously been mentioned (v. s.) was found reliable. In such cases, the blood pressure dropped as improvement occurred or it remained unchanged. In 15 out of 18 cases, there was a drop in blood pressure with the use of digitalis.

The *nitrites* after a short trial were abandoned as it was felt that the patients were not being sufficiently benefited by their use and that better methods were available.

Potassium iodide was used in 12 cases and a marked drop in blood pressure was observed in half this number; in two or these, the drop exceeded 60 mm.

The *low salt diet* was tried in 2 cases with good results. In the first case, the systolic blood pressure dropped rather sharply from 190 to 150 mm. but in the course of 6 months the blood pressure was back again at the starting point only to fall again at a later date. In the second case, a moderately obese woman of 55 with cerebral manifestations and a blood pressure of 206 systolic and 140 diastolic was placed on a low salt diet and calcium gluconate by mouth because edema of the brain was suspected. The result was very gratifying; there was a sharp drop in weight and the cerebral symptoms disappeared; there was also a slight drop in blood pressure. Bellergal was used for the nervousness and the other annoying symptoms in 2 cases with good results. Progynon by injection was used in one case of a menopausal syndrome with elevated diastolic pressure. A lasting beneficial result was obtained for nearly a year accompanied by a slight drop in blood pressure. Venesection was used in one case with a blood pressure of 272 systolic and 140 diastolic; 300 cc of blood was withdrawn which was followed by a drop of nearly 100 points in the systolic blood pressure. The blood pressure gradually rose and at the end of the first month had regained the original level. Among hospital patients bed rest often resulted in marked lowering of blood pressure without the use of any drugs or diets.

An investigation was made to determine whether the drop in blood pressure was in any way related to the height of the systolic blood pressure. This was done by dividing the cases into 4 groups. In the first group were included those with a systolic blood pressure below 179; in the second group from 180 to 209; third group 210 to 249; fourth group 250 and over. The number of times that a drop in blood pressure of 40 mm. or over occurred was recorded for each group. The results are shown in the table below, and it appears that the degree of the drop in blood pressure is related to the height of the systolic blood pressure.

B. P. Group	Fall of 40 mm, or more Percentage
Up to 179	14%
180 to 209	33%
210 to 249	50%
250 and over	87.5%

Summary: The newer knowledge of the etiology in hypertension is reviewed and an attempt is made to show how this knowledge may be used in the treatment. The treatment in hypertension to be most successful must consider the probable cause or the aggravating factor and the treatment regulated accordingly. Obesity, thyrotoxicosis, the menopause, diencephalic stimulation and psychic disturbances are aggravating factors in hypertension and in some instances may even produce it. The complications

are discussed, including gastrointestinal and renal complications.

The older methods of treatment with sedatives and iodides is insufficient for most cases of hypertension. With more energetic methods of treatment much more can be accomplished. The condition of the hypertensive patient must not be considered hopeless. In most instances, life can be made easier and bearable for these patients and in some the progress of the disease may be temporarily arrested. The public must be educated that treatment for hypertension is worth while and that it takes considerable time to carry out. On the professional side we need more interest and special clinics should be provided where hypertension would be investigated and the course of the disease followed. This would in time provide a personnel, interested and acquainted with the management of hypertension who would be able to handle the ever increasing numbers of these patients coming to the clinics.

1352 E. 55th St., Chicago.

Note: Since this paper was submitted for publication the work of Prinzmetal and Wilson (J. of Clin. Inv. 15: 63, 1936), has attracted considerable attention. They demonstrated that anesthesia with procaine of the vasomotor nerves of an arm produces the same increase in blood flow in normal persons and in those with hypertension. This tends to show that the vascular hypertonus is independent of the vasomotor nerves and that this hypertonus is an intrinsic spasm of the vessels themselves. They add that sympathectomy would therefore not abolish the vascular hypertonus that is responsible for the hypertension. It is as yet too early to make any positive statements concerning this work. Certainly it should not be taken to mean that the autonomic nervous system does not play an important part in the symptomatology of hypertension. Soma Weiss (Med. Clin. N. A. 19: 1343, 1936), in an excellent paper which every physician should read, discusses the work of Prinzmetal and its bearing on sympathectomy. He also cites the work of Peet who was able to cure several cases of hypertension by resecting the greater and lesser splanchnics and the lower dorsal sympathetic chain, including the 10th, 11th, and 12th dorsal ganglions bilaterally. In one case with a *diastolic* blood pressure of 180 mm. of Hg. the blood pressure was brought down to normal and has remained so for 2 years. This is probably too long a time to explain such a drop in blood pressure by shock alone. It would appear that if the sympathetics do not act directly by maintaining vascular hypertonus, they are nevertheless responsible for it in an indirect manner in certain instances. Weiss also mentions several other interesting points. He states that complete ablation of the thyroid gland apparently fails to influence the course of arterial hypertension. Thus confirming what is said in the early part of this paper on "thyroid hypertension." Despite the good results of Peet, Weiss is not enthusiastic about sumpathectomy in hypertension. He stresses that if one induces arteriolar dilation by nerve section, marked capillary hypertension will be precipitated and these delicate vessels are not able to withstand it.

From the Dep't of Medicine, Rush Medical College of the Univ. of Chicago and the Michael Reese Hosp.

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NARCOLEPSY
ATTACKS OF IRRESISTIBLE SLEEP

R. L. Gorrell, M. D.
CLARION, IOWA

You will pardon the use of a definition as the title of this paper. It is thus written, so that "he who runs, may read," and having read, remember.

There is a special responsibility on us to recognize those conditions which we can markedly help or cure. Despite the publication of ten articles in American medical journals on narcolepsy, the condition is not being recognized, even when a typical history is given. Narcoleptics are partially incapacitated, may be injured at any time, especially in cities, and often feel themselves set apart from society because of the embarassing situations which result from their twin afflictions of sleep attacks and emotional weakness.

Doyle and Daniels[1], Jacobsen[2], Hall[3] and Prinzmetal and Bloomberg[4], among others, have shown that the attacks can be prevented or markedly alleviated by ephedrine or benzedrine (ephedrine: three-eighth grain, two to five times daily; benzedrine: ten to forty milligrams daily). Benzedrine (benzyl-methyl-carbinamine) has proven effective in some cases not relieved by ephedrine. Although these drugs are usually necessary over periods of years, thus being substitutive, not curative therapy, children have been freed from the necessity of taking them after a comparatively short course[2].

A full discussion of etiology is given at the end of the article. For practical purposes, the cause is not known[5]. The attacks are not of hysterical origin.

On excitement, cataplectic attacks may occur. The legs buckle under and the patient collapses on the floor, if he cannot sit down at once. The emotion may result from hearing a joke or an exciting incident.

Attacks of irresistible sleep, which cannot be prevented by sleeping for ten or fifteen hours each day; which are not associated with other symptoms (as tonic or clonic movements, convulsions, vomiting, coma, sphincteric relaxation, or somnolence following the attack); are not affected by sedatives, strychnine, thyroid extract, ergotamine, caffein, atropine, pilocarpine; are

*Formerly assistant, department of medicine, Northwestern University Medical School.

not associated with or followed by serious symptoms or organic disease; frequently coexist with attacks of emotional weakness, may be classed as narcoleptic.

I am reporting two cases of true idiopathic narcolepsy. Symptoms had been present for twelve and seventeen years respectively, without development of signs or symptoms of glandular dysfunction, organic nervous system disease or other pathology.

Case 1. Mrs. K. N., farmer's wife, aged 32 years; complaint—attacks of sleepiness for twelve years. She feels an overpowering desire to sleep four or five times daily, cannot keep awake at such times by any effort of will; the attacks are more frequent if fatigue, warmth and quiet coexist. Nocturnal sleep is normal, but even if lengthened to twelve hours, does not prevent the attacks, nor do cold applications or exercise. After she falls asleep, it is difficult to arouse her for a few minutes, after which she gradually awakens, feeling refreshed. Her general health has been good. During the 1918 epidemic of influenza, she missed two days school, because of fever, but recovered promptly without neurologic symptoms or sequels. Menses began at 13, are regular 28 day, 5 days' duration; no dysmenorrhea since birth of two healthy children. Mother died of cerebral hemorrhage; father, brothers, husband are well. A tonsillectomy was performed four years previously by some optimistic surgeon, without affecting the narcolepsy.

Physical examination revealed only a small thyroid mass (tachycardia, exopthalmus, heat intolerance, nervousness, absent); retroverted uterus, with transverse cervical laceration; B. P. 118/80. Negative urinalysis, blood Wassermann; R.B.C. 4,200,000.

She had consulted seven physicians previously. Diagnoses had included hypothyroidism (no relief from thyroid extract); anemia; nervousness; petit mal.

Ephedrine sulphate in dose of ⅜ gr. t.i.d. relieved her completely. When staying up late for a party or longer work, she found it necessary to take a fourth dose. It is interesting to note that some patients, notably asthmatics, complain of nervousness on taking one or two capsules daily. On several occasions, she has taken as many as six doses in 18 hours without ill effects.

After taking ephedrine continuously for over a year, she is in good health. Her weight is ten pounds less than before taking ephedrine, thus reversing the usual weight gain during the course of the disease. She gives an impression of mild hyperthyroidism, but examination gives no supporting evidence. It may result from the sympathetic stimulation of the ephedrine.

Case 2. Mrs. S. D., aged 38 years, wife of professional man. For seventeen years she has noticed attacks of sleep, which might occur at any time, but especially during church, and while eating, playing cards and riding. She always had time to sit down, or to stop the car, if driving. The attacks would be much worse during pregnancy. The sleep would be quiet, short (5-10 minutes); occurred six to twelve times daily.

Weakness during emotion had always troubled her. On hearing a joke, her legs would weaken and she would sink almost to the floor. If especially excited, the process would be immediately repeated.

She was very sensitive about discussing the condition, as a result of many public attacks, and being labeled as a neurotic and epileptic. She would not have come in. except that her husband had become alarmed about her frequent complaints of occipital headache and neck stiffness, both having become more frequent during the last five years. The stiffness had always been relieved by massage.

During the last four years, both types of attacks had become much less frequent and severe; the cataplexy being hardly noticeable.

Past health: always good; no illnesses or operations. She had been married fifteen years; delivered three normal children, without incident. She has gradually become overweight (twenty pounds).

Physical and neurologic examinations negative; urine negative.

She did not desire to take medication, because of the spontaneous improvement. By habitually sleeping from 10 p. m. till 8 or 9 a. m., and from 1 to 4 p. m., she could keep from having more than a few attacks, each day.

Case 3. M. G., aged 24 years, Chicago clerk, entered the dispensary complaining of attacks of weakness on sudden excitement. On hearing the fire siren at night, he would jump from his bed and start toward the window. His legs would feel so weak that he would be forced to stand or even sit down for a few minutes, until he regained control. The cataplexy was not disabling, as he could carry on his work, and was not excited during the day. Humor resulted in a little weakness. He had never suffered attacks of irresistible sleep, nor did he sleep over long during the three years that he had noticed the emotional weakness.

His past history was negative, except for measles when a child. Physical, nerologic and laboratory examinations were negative. A neurologist confirmed the diagnosis of cataplexy.

He had sought medical attention because his wife thought the condition might be serious, although it had not become progressive, nor had any other symptoms developed. On learning that no organic disease had been found, he refused medication, as he said the discomfort was slight.

Differential Diagnosis: All causes of abnormal sleep may be considered. The drowsiness of fatigue, convalescence from febrile diseases, in the course of chronic wasting diseases, of anemic young women (diurnal drowsiness and nocturnal wakefulness), and the somnolence of postepilepsy and asphyxia are usually readily recognized. Inflammations of the brain (encephalitis lethargica, meningitis, abscess, syphilis), brain tumors, concussion of brain, cerebral hemorrhage and thrombosis, poisoning, notably by opium or morphine,

diabetic acidosis, uremia, acute alcoholism, trypanosomiasis, dementia precox may be differentiated by accompanying symptoms. Fröhlich's syndrome, hypothyroidism, pyknolepsy, psychalepsy (Oppenheim's psychasthenic convulsions); "procursive," traumatic or reflex epilepsy require careful study.

Pyknolepsy ("little absences") can be ruled out because the unconsciousness lasts for only a second; there is no change of posture, nor are articles dropped; they usually occur many times daily; no cataplexy coexists.

Gelineau's original definition, if strictly applied, would have prevented many cases of somnolence, secondary to known organic or psychic cause, from filling the literature under the title of narcolepsy: "A neurosis characterized by an irresistible desire to sleep, sudden and of short duration, returning at frequent intervals" (1880). He stressed *the lack of grave symptoms and absence of consecutive lesions.*

Herewith is presented in abstract form, all the cases of narcolepsy I have been able to find in the literature at my disposal. Cases associated with brain infections, tumors, increased intracranial pressure, toxic conditions, and other definite pathology have not been included.

Cases:

REPORTED CASES

Author—Date	Sex	Age	Symptoms	Etiology	Course
Gelineau[17] 1880	M	18	Typical narcoleptic and cataplectic attacks.	Idiopathic.	No change.
Redlich[8] 1915	M	19	Narcoleptic; cataplectic. Son of alcoholic.	Idiopathic.	No relief by suggestion, caffeine.
Henneberg[20] 1916	M	35	Narcoleptic attacks for 25 yrs. after overwork. Cataplexy.	Idiopathic.	No relief by medinal or caffeine.
Singer[24] 1917	M	33	Narcoleptic, cataplectic attacks 15 years. Severe headaches with somnolence.	Encephalitis.	No relief.
Redlich[23] 1917	M	21	Occasional sleep attacks, 7 years last 1-2 days; failing memory; poor concentration.	Head trauma.	Pseudo-narcolepsy? No change.
Lhermitte[29] 1918	M	33	Persistent attacks of sleep; no cataplexy.	Shell explosion and concussion.	Pseudonarcolepsy? No relief.
Lhermitte[29] 1918	M	30	Prolonged periods diurnal sleep.	Shell shock.	8 months later, attacks unconsciousness and convulsions.
Lhermitte[29] 1918	M	23	Temporary loss consciousness and aphasia; narcoleptic attacks; no cataplectic.	Left temporal injury by shell.	No relief.
Lhermitte[29] 1918	M	26	Daily attacks of profound sleep; dreams of war terror; no cataplexy.	Left frontal area struck by shrapnel.	No relief.
Kahler[32] 1921	M	16	Narcolepsy several years after head trauma.	Head injury.	No relief.
Missriegler[3] 1924	M	19	Sleep attacks; somnambulism; facialotic; pyknolepsy; loss sexual instinct. Subsconscious desire for intercourse with mother, sister, young girls.	"Cerebral influenxa" 8 mos. previously.	Psychoanalysis relieved pseudonarcolepsy.
Goldflam[15] 1924	M	35	Narcoleptic 21 years.	Idiopathic.	Marked spontaneous improvement 9 years.
Matzdorf[14] 1925	M	19	Narcolepsy, cataplexy 2 years.	Idiopathic.	No change.
Janzen[7] 1926	M	40	Narcoleptic 26 years; hypothermia; lymphocytes 42%.	Small sella.	No change.
Janzen[7] 1926	M	24	Narcoleptic, cataplectic 6 months; prophynotic diplopia; severe cataplectic.	Normal sella, blood, spinal fluid.	Pluriglandular therapy gave much relief.
Janzen[7] 1926	M	25	Narcoleptic; prohypnotic diplopia.	Shallow sella.	Pluriglandular therapy cured.
Symonds[19] 1926	M	20	Excessive sleepiness; later Parkinsonian facies, and gait.	Influenza and encephalitis.	Parkinsonism.
Souques[30] 1927	M	22	Pahologic somnolence in seizures; no cataplexy; marked spinal fluid pleocytosis.	Head trauma.	Pseudonarcolepsy.
Seques[30] 1927	M	26	Unconscious 2 days; right hemiparesis and aphasia; increased spinal fluid pressure; neg. Wass.; 40 cells.	Shell burst. Pseudonarcolepsy.	8 months later, fewer attacks; Wassermann positive; Anti luetic therapy gave no relief.
Kluge[22] 1927	F	31	Narcoleptic attacks began during pregnancy, with fever, diplopia; pupils irregular, fixed; blood, spinal Wass. neg. Obesity.	Epidemic encephalitis?	No change.
Papastratigakis[31] 1927	M	25	Loss consciousness 3 hours; mental confusion and narcolepsy 4 months. Parkinsonian mask, cogwheel rigidity rhythmic tremor.	Head injury.	Parkinsonism.

Author—Date	Sex	Age	Symptoms	Etiology	Course
Muenzer[6] 1927	M	29	Narcolepsy; marked obesity; weakness convergence; somnolence. Later, compulsion to speak, yawning; head "heaviness."	Encephalitis.	No change.
Thrash[1] 1928	M	35	Narcolepsy and cataplexy; sleepy during day; continued increase in size head, feet, and weight (pituitary?).	Fracture nose sup, maxilla one month before.	No change after 10 years.
Haenel[27] 1928	M	39	Narcolepsy, cataplexy later. Irritable, nervous, sensitive; personality changes.	Head trauma. Pseudo?	No change.
de Villaverde[5] 1928	M	16	Emotional loss of tonus; also could be induced by suggestion.	Idiopathic.	Some improvement during observation.
de Villaverde[5] 1928	F	45	Attacks somnolence at menopause with marked obesity.	Very small sella.	No change.
de Villaverde[5] 1928	M	30	Somnolence; serous meningitis in childhood, followed by dystrophia adiposogenitalis and somnolence.	Pseudonarcolepsy after meningitis.	No change.
Pollock[33] 1930	F	25	Unconscious 3 hours; severe headache, insomnia; bloody spinal fluid. 2 weeks later, polyuria, narcoleptic attacks.	Auto accid. Pseudonarcolepsy.	No change.
Escardo[9] 1930	F	37	Psychopathlogic woman; narcoleptic attacks often coincided with weather change.	Pseudo.	No change.
Lhermitte[29] 1930	M	23	Narcoleptic and cataplectic; chills with no elevation temperature; hallucinations; R. B. C. 8,500,000.	Erythremia.	No egect from sod. salicylate intravenously, testicular extract; scopolamine valerian.
Doyle, Daniels[18] 1931	M	20	Narcolepsy, cataplexy 18 months.	Idiopathic.	Ephedrine relieved.
Doyle, Daniels[18] 1931	M	11	Narcolepsy, cataplexy 3 years.	Idiopathic.	Ephedrine relieved.
Doyle, Daniels[18] 1931	F	44	Narcolepsy 4 years; obesity; —7 B. M. R.	Idiopathic.	Ephedrine relieved.
Doyle, Daniels[18] 1931	M	25	Norcolepsy 5 years; visual hallucinations.	Idiopathic.	Ephedrine relieved.
Doyle, Daniels[18] 1931	F	57	Mild narcolepsy 10 years; —12 B. M. R.	Idiopathic.	Ephedrine relieved.
Doyle, Daniels[18] 1931	F	42	Narcolepsy 28 years; cataplexy 26 years.	Idiopathic.	Ephedrine relieved.
Daniels 1932	M	22	Narcolepsy 6 years; irritable; temper outbursts; poor judgment.	Severe head injury.	Ephedrine gave little relief; encephalogram (negative) resulted in cure.
von Szathmary[12] 1932	F	28	Explosion, unconsciousness 3 years previously; narcolepsy began in 6th month pregnancy, rapidly more severe.	Traumatic? Toxicosis?	Rapid disappearance after delivery.
Thiele[26] 1933	M	39	Somnolence; sleeps 18 hours daily, at intervals.	Head injury.	No change.
Thiele[26] 1933	M	20	Narcolepsy, cataplexy; recurrent severe headaches.	Head injury.	No change.
Jacobsen[13] 1933	M	13	Narcolepsy 6 months; slept 20 out of 24 hours, if not awakened; dull mentally; Hb 80%; after emotion, slept 36 hours; gained 30 pounds in eight months.	Normal sella and B. M. R.	Ephedrine relieved; gradually decreased none needed now.
Jacobsen[13] 1933	F	9	Narcolepsy, cataplexy 9 months, preceded by choreiform twitching; emotionally unstable; obese; delayed mental development; gained 50 pounds 9 months; B. P. 119/95.	—27 B.M.R. Small sella, normal shape.	Ephedrine relieved; now needs none.
Jacobsen[13] 1933	F	9	Narcoleptic; dull mentally; frightened easily.	B. M. R. —26. Normal sella.	Ephedrine relieved.
Thiel[25] 1933	M	15	Attacks somnolence while standing, riding, in theater; no cataplexy.	Suicidal shot in right temple.	Pseudo. No change.
Bloomberg[35] Prinzmetal 1935	M	26	Narcolepsy 1 year; obesity; female hair distribution; —19 B. M. R.	Influenza; encephalitis?	Ephedrine, benzedrine relieved.
Bloomberg[35] Prinzmetal 1935	M	21	Narcolepsy, obesity 6 years; no body hair; —23 B. M. R. Normal sugar tolerance.	Normal sella.	Thyroid gave slight relief; ephedrine relieved for few months; benzedrine, relief year.
Bloomberg[35] Prinzmetal 1935	M	19	Narcolepsy, cataplexy 3 years.	Head injury.	Ephedrine relieved for few months; benzedrine relieved.
Bloomberg[35] Prinzmetal 1935	F	24	Narcoleptic 10 years; slight cataplectic attacks; —25 B. M. R.	Idiopathic.	Pituitary sol. gave no relief; Thyroid some relief; benzed. complete relief.

Author—Date	Sex	Age	Symptoms	Etiology	Course
Bloomberg[35] Prinzmetal 1935	M	11	Narcoleptic 2 years; slept all time not actively engaged.	Idiopathic.	Thyroid. sedatives no relief; benzedrine relief.
Bloomberg[35] Prinzmetal 1935	M	34	Narcoleptic, cataplectic 10 years; unable to concentrate, poor memory; orchidectomy (embryoma) 3 yrs. previously (no metastasis); —16 B. M. R.	Skull X-ray negative; lumbar puncture negative.	No relief ergotamine and caffeine benzed. complete relief.
Bloomberg[35] Prinzmetal 1935	M	18	Narcolepsy, cataplexy 3 years; strephosymblic stammering.	Idiopathic.	Atropine, pilocarpine, no effect; benzed. relieved.
Bloomberg[35] Prinzmetal 1935	F	14	Narcolepsy, cataplexy 3 years; mitral stenosis; R. B. C. 3,000,000.	Mild head injury; neg. spinal.	Benzedrine relieved.
Bloomberg[35] Prinzmetal 1935	F	21	Narcolepsy, cataplexy 4 yrs.; congenital ptosis one eyelid.	Lab. exam. neg.	Large doses ephedrine relieved for short time; benzedrine completely relieved.
Hall[21] 1935	M	22	Narcolepsy, cataplexy; first diagnosed traumatic epilepsy.	Head injury. No fracture, normal sella.	No relief by phenobarbital, restricted fluid; Ephedrine relieved.
Gorrell 1936	F	32	Narcolepsy 10 years; slight cataplexy; R. B. C. 4,200,000.	Idiopathic.	Ephedrine relieved completely.
Gorrell 1936	F	38	Narcolepsy, cataplexy 17 years; worse during pregnancy.	Idiopathic.	Gradual spontaneous improvement.
Gorrell 1936	M	24	Cataplexy; no somnolence or narcolepsy.	Idiopathic.	No change.

NARCOLEPSY

Etiology:

A. Endocrine

1. Pituitary
   a. Acromegaly associated in cases of Dercum, Haenneberg and Pianner; relieved by pituitrin.
   b. Diabetes insipidus associated in Moreschi's case; relieved by injections pituitrin.
   c. Fröhlich's disease, polyuria and narcolepsy in Torrigianis case; cured afted removal projectile from hypophyseal recess. deVillaverde's[6] case exhibited Frölich's disease after serious meningitis in youth.
   d. Sella turcica smaller in majority of cases (deVillaverde[6], Janzen [7], Jacobsen[2], Redlich[8], Jolly, Adie, Schuller.
   e. Bowmann's, case relieved by pituitary extract.
   f. Thrash and Massee's case[9] continued to grow until thirty-five years of age (especially size feet and head).
   g. Tumors of hypophysis; attacks disappeared with radiotherapy or hypophysical therapy in some cases; Lhermitte[10], Souques[11], Baruk, Bertrand, Mensinga, Parhon and Goldstein, Bergmann, Steinhaus, Simon, Lerebouillet, Mallet and Brizard, Klippel and Weill, Herran Steinhaus. Herran and Tilney.
   h. Cushing and Jolly, Redlich[12] and Purves Stewart, Salmon[13] believe an endocrine cause, especially pituitary.
2. Hypothyroidism, believed to be cause by Lorand, Forneris, Briquet. Low B.M.R. reported by Bloomberg[4], Jacobsen[2].
3. Obesity; European authors consider obesity an endocrine disturbance; associated with narcolepsy by Lhermitte[10], Jacobsen[2], my second case; cases often gain weight rapidly during course of disease (see cases).
4. Menstruation: Ballet, Fischer, Kahler, Nevermann and Kawewijn note that attacks occurred much more easily during menstruation. deVillaverde[6] records attacks beginning at menopause, with obesity.
5. Pregnancy: von Szathmary[14] reported a case in which narcoleptic attacks began during pregnancy, became progressively worse until after delivery, then stopped.

   Nevermann and Kallewijn's case: attacks began during pregnancy. My second case was much worse during each pregnancy.

B. Traumatic
   1. Redlich[8], Daniels[15,16], singer, Kurtand Echter[17], Thiele and Bernhardt[18], Hall and LeRoy[19], Lhermitte[20], Souques[11], Papastratigakis[21], Kahler[22], Pollock[23], have reported cases following trauma, as has Bloomberg[4].

C. Epileptic. This should not be considered, as narcolepsy and epilepsy have nothing in common. Salmon[13] states that "narcoleptic crises are frequent in epileptics."

D. Psychopathologic. Under this heading several typical cases have been reported, notably Missriegler's[24], which exhibited incestous desires; cured by psychoanalysis, deVillaverde's case was made worse by suggestion.

E. Toxic infective
   1. Epidemic encephalitis has been accused by many writers of causing most cases of narcolepsy, though Gelineau and Redlich observed cases long before encephalitis lethargica was known. Some of these authors are: Schuster, Perrier, Lhermitte[10], Rouques, Fuchs, Kennedy, Hochwart, DiPace, Alajouanine, Baruk, Muenzer[25], Kluge[26], Bloomberg[5].
   2. Meningitis in deVillaverde's case[6].
   3. Influenza mentioned by Barrett, Frome, Young, Scharp and Priester and Missriegler[24].

F. Circulatory
   1. Epistaxis, Mendel's case suffered attacks when epistaxes stopped; MacNamara's case was relieved after abundant epistaxis; Hilpert noted crises of narcolepsy and cataplexy associated with nose-bleed. DiPaces' cases improved by epistaxis or severe hemorrhoidal flow.
   2. Lhermitte and Peyre[10] believe narcolepsy frequently associated with erythremia (R.B.C. 8,500,000 in their case). This theory is not supported by the literature.

G. Increased intra-cranial pressure, especially in third ventricle, tumors. (Claude, Schaeffer and Alajouanine, Claude and Lhermitte); in hypophysis (Mensinga, Parhon and Goldstein; see previous list); in infundibulum (Lhermitte, Souques, Baruk and Bertrand).

H. Hysteria—no relationship whatsoever.

I. Idiopathic, especially occuring in young males, without antecedent disease or trauma.

Conclusion: Lhermitte[10] believes it a syndrome resulting from various causes. This seems to be the logical conclusion. The region of the tuber cinereum is apparently the area of sleep regulation[27] (between the optic chiasm and mammillary bodies, close to the floor of the third ventricle). Injection of calcium chloride into this region in animals resulted in deep sleep lasting for thirty to forty minutes; potassium chloride injected in the same area brought on overactivity. Salmon[13] believes narscolepsy a result of angiospasm of the infundibular sleep regulating center. Doyle and Daniels[1] suggest that cataplectic seizures may be due to inability of suprarenals to deliver epinephrine quickly enough during periods of emotional stress. In Daniel's case[16], a negative encephalogram gave relief after ephedrine had failed. We recently had a severe case of idiopathic epilepsy (confirmed by neurologist), completely and dramatically relieved by a negative encephalogram; have noted in the literature treatment of epilepsy by air injections into the spinal canal or ventricles. The resemblance between the two diseases as regards etiology, i. e., traumatic, idiopathic, cerebral tumor, et cetera,—explosive nature of symptoms, occurring frequently for a period of years, and relief by drugs, indicates that advancing knowledge of cerebrospinal fluid circulation and pressure, and of brain physiology may solve both problems.

Is Narcolepsy Rare, or Is Just the Diagnosis? Because of the unusual symptoms of narcolepsy, I submitted a brief paragraph on it, to Colliers magazine. Following publication, I received letters from 43 narcoleptics in 19 states. Of this group, 38 had not been diagnosed, despite visits to a number of physicians. Clinical guesses included: neurocirculatory asthenia, overdrinking of milk, hysteria, epilepsy, disbelief in the patient's statements and endocrine deficiency. 29 were males, all except 3 were under 40 and a number presented definite obesity. Preceding factors included: influenza, scarlet fever, head injury, tonsillectomy and poliomyelitis. A clear history of catalepsy was given by 26 patients. The diagnosed cases have had much relief from Benzedrine sulphate, with few undesirable symptoms, although one Californian reported taking up to 110 mg. (10 tablets) on some days. These cases will be followed up by their local physicians and a full report made later.

Yours,

R. L. Gorrell, M.D.

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COMPARATIVE VALUE OF PURINE DERIVATIVES IN TREATMENT OF ANGINA PECTORIS

Morton G. Brown and Joseph E. F. Riseman, Boston (*Journal A. M. A.*, July 24, 1937), compared the value of six theophylline, four theobromine and one caffeine preparation in the treatment of angina pectoris in seventeen patients by using the usual clinical methods and also by measuring the amount of work under standardized conditions which could be done before inducing cardiac pain. The optional dosage was usually the maximal amount that could be given without causing severe gastric distress. Not all patients respond to purines. The sodium acetate derivatives of theophylline and theobromine were the most effective preparations. Patients who did not respond to these drugs usually showed a good response to theophylline with calcium salicylate, which was the next best preparation. Theophylline, theophylline with ethylenediamine, theophylline mono-ethanolamine, theophylline with methyl glucamine and theobromine with calcium salicylate were about equally effective but were less so than the aforementioned preparations. Theobromine and theobromine with sodium salicylate were distinctly less effective, while caffeine citrate was of little or no value. Sedatives are of value in the treatment of patients with angina pectoris, but their combination with a purine does not result in an increased exercise tolerance. Theobromine with sodium acetate is by far the least expensive of the effective purine preparations.

Society Proceedings

GREENE COUNTY

Regular Meeting of the Greene County Medical Society was held in the parlor of the Christian Church, White Hall, Sept. 10, 1937. This was a joint meeting of the Green County Medical Society and the Dentists of the County.

Meeting called to order at 8:00 p. m. by the President, Dr. C. O. Bulger. Reading of the minutes was dispensed with. The applications of Drs. Robert Piper of White Hall and Rollo B. Sarginson of Kane for membership, were received and referred to the Board of Censors.

Dr. Wm. L. Hanson of East St. Louis was introduced. Dr. Hanson gave us a very practical and instructive paper on "Infections of the Mouth and of the Throat." The lecture was illustrated by lantern slides.

Business session resumed. The Resolution of Senator J. Hamilton Lewis to Socialize medicine was read and discussed.

On motion by Dr. Baldwin, seconded by Dr. E. W. Thomas the secretary was authorized to cast the unanimous vote of the Society in opposition to any effort to socialize medicine.

Dr. A. K. Baldwin was appointed censor to fill the vacancy caused by the death of Dr. E. E. Jouett.

Eleven members, ten dentists and four visitors were present.

Marriages

Alexander O. Birgerson, Chicago, to Miss Eleanor B. Mueller of Hinsdale, Ill., July 31.

Henry N. Harkins, Chicago, to Miss Jean Trester of Hobart, Ind., June 19.

Nicholas Lucia, Braidwood, Ill., to Miss Elizabeth J. Yeats of York, Pa., at Collegeville, Pa., June 6.

Wilfred J. Nowlin, Farmer City, Ill., to Mrs. Neva Whitford Jones of Champaign, in Chicago, June 15.

Ralph O. Peterson to Miss Viola Gellin, both of Chicago, June 24.

William F. Seifert to Miss Kathleen Lewis, both of Chicago, in June.

Herman A. Strauss to Miss Jean Heller, both of Chicago, August 2.

Personals

Dr. LeRoy H. Sloan, associate professor of medicine, University of Illinois College of Medicine, has been appointed professor of medicine, effective September 1. Dr. Sloan graduated at Rush Medical College in 1917.

Dr. Cral J. Uthoff addessed the 16th Annual Scientific and Clinical Session of the American Congress of Physical Therapy at Cincinnati, Ohio, September 21 on "Transvesical Electrosurgery of Prostate and Vesical Neck."

Dr. Sidney O. Levinson gave a paper on "Poliomyelitis," before the Iroquois County Medical Society, September 7.

Dr. Paul L. Schroeder gave an address on "Behavior Problems in Children" before the Effingham County Medical Society, September 14.

Dr. P. F. Schneider gave a paper on "Progress in Obstetrics and Gynecology" before the Bureau County Medical Society, September 14.

Dr. Clark W. Finnerud gave a talk before the Kankakee County Medical Society, September 9, on "The Diagnosis and Treatment of Common Skin Diseases."

Dr. William Bernard Raycraft gave a talk on "Infantile Paralysis," before the Parent Teacher Association of Hollywood, September 14.

Dr. C. R. G. Forrester addressed the members of the Will-Grundy County Medical Society at their first meeting held in Joliet, September 22.

Dr. Ralph A. Kordenat and Ed. L. Cornell gave the program before the Stephenson County Medical Society at Freeport, Ill., September 23. The subject of Dr. Kordenat's address was the "Acute Abdomen," and Dr. Cornell spoke on "Obstetrics."

Dr. J. T. Gernon of Chicago and Dr. Paul H. Harmon of Springfield addressed the Jo Daviess County Medical Society, at Stockston, August 26, on "Treatment of Infections of the Upper Urinary Tract and Poliomyelitis" respectively.

Dr. Max Thorek presented a motion picture and gave an address Wednesday, September 8th at the University of London, England on "A Report of 342 Cases of Electrosurgical Obliteration of the Gallbladder."

News Notes

—The Sangamon County Medical Society was addressed in Springfield, September 2, by Drs. Burton Lyman Stewart on treatment of urogenital tract infections with sulfanilamide; William DeHollander, "Postoperative Pulmonary Collapse: Roentgen Aspects," and George H. Fleischli, "Fractures About the Elbow." All are from Springfield.

—The *Medical News* of Rock Island County made its appearance in August as the official publication of the Rock Island County Medical Society, with Dr. George W. Dryer as editor in chief. Dr. Warren H. Cole, Chicago, addressed the county medical society, September 14, on "Pathogenesis, Diagnosis and Treatment of Chronic Cholecystitis."

—Thirty deaths and 225 cases of bacillary dysentery have occurred at the Dixon State hosital for mental defectives since the first of the year, the newspapers reported September 10. At that time eighty-one persons were under quarantine and all the 3,200 patients in the hospital were being examined for symptoms and signs of the disease.

—Dr. Amos W. Ball, Rushville, was guest of honor at a dinner given by the Rushville Rotary Club, August 10, to celebrate his completion of fifty years in the practice of medicine. He was presented with a Rotary pin. Speakers included Drs. Everett P. Coleman, Canton, councilor of the fourth district of the state medical society: Don W. Deal, Springfield; Perry H. Stoops, Ipava; Henry O. Munson and Frederick D. Culbertson. Dr. Ball graduated in 1886 from Missouri Medical College, St. Louis.

—Fifteen persons have been named by the governor to a newly created advisory board of the division for handicapped children, state department of public welfare. Dr. Paul H. Harmon is director of the division and members of the committee include Drs. Henry B. Thomas, Edward L. Compere, Philip Lewin, Julius H. Hess, Edwin W. Ryerson, Robert A. Black, Philip H. Kreuscher, all of Chicago; Frank J. Jirka, state health director; Gerald M. Cline, Bloomington; Fred S. Etherton, Carbondale; Rolland L. Green, Peoria; Harold M. Camp, Monmouth; Charles S. Skaggs, East St. Louis; Miss Mable Dunlap, Moline, and Mark Penney, state board of vocational rehabilitation, Springfield.

—Northwestern University Medical School sponsored a symposium on industrial disease and hygiene at Thorne Hall, September 27-28. The following program was presented:

Dr. Samuel M. Feinberg, Rôle of Allergy in Industry.

Dr. Marion B. Sulzberger, New York, Rôle of Allergy in Industrial Dermatoses.

Dr. Leroy U. Gardner, Saranac Lake, N. Y., Some Phases of the Pathology of Silicosis.

Dr. Eugene P. Pendergrass, Philadelphia, The Healthy Chest and the Modifying Influences of Silicosis and Silicosis with Infection.

Clarence W. Muehlberger, Ph.D., Toxicology of Industrial Solvents.

Dr. Alice Hamilton, Boston, Some Recent Developments in the Field of Industrial Solvents.

Dr. Robert A. Kehoe, Cincinnati, Industrial Lead Poisoning.

Dr. James A. Britton, medical director, International Harvester Company, concluded the after-

noon's program with a round table discussion on occupational disease. At the dinner in the evening, Mr. O. E. Mount, president of the board of governors, department of occupational disease at the university, presided and the speakers, Dr. Irving S. Cutter, dean of the medical school, discussed "The Rôle of the Medical Unit in Industry," and Frances Perkins, secretary. U. S. Department of Labor, Washington, D. C., "Health in Industry."

A group of neurologists and psychiatrists met in the state's attorney's office, August 27, to discuss the problem of dealing with persons belonging in the group of mental disorders not covered by the degal definition of insanity and feebleminded who may be apprehended for some crime. The group consisted of Drs. Peter Bassoe, H. Douglas Singer, Clarence A. Neymann, Francis J. Gerty, David Slight, Paul L. Schroeder, David Rothman, Lewis J. Pollock, Ralph C. Hamill and Harry R. Hoffman. There has been a recent increase in sex crimes. Under the present statutes sex criminals not insane or feebleminded may receive only short sentences, and they frequently repeat their crimes. A subcommittee consisting of Drs. Pollock, Gerty, Hoffman, Schroeder and Rothman was appointed to prepare a definition of the mental disorders under consideration, particularly of sexual psychopathy. It is to recommend to the committee of the whole plans for statutes which, as in the case of the Briggs law of Massachusetts, would provide means for the early recognition of sexual and other psychopaths. Such laws would also provide for commitment of these persons to a hospital for observation and diagnosis, as does the Colorado law of 1924 dealing with insanity as a defense, and for treatment and isolation of vicious and antisocial characters until they are pronounced cured by a suitable board of psychiartists.

Deaths

Rueben Jay Atwood, Chicago; Chicago Medical College, 1890; served during the World War; aged 72; died, July 2, of carcinoma of the lip.

D. Watson Grear, Anna, Ill.; Missouri Medical College, St. Louis, 1890; a Fellow, A. M. A.; formerly coroner of Union County; for many years on the staff of the Southeastern Hospital for the Insane, North Madison, Ind.; aged 74; died, June 5, of angina pectoris and chronic myocarditis.

Henry Arthur Greenebaum, Chicago; Rush Medical College, Chicago, 1929; a Fellow, A. M. A.; assistant in medicine, University of Illinois College of Medicine; associate attending physician to the Cook County Hospital; aged 34; died, June 24, of meningitis and pyelonephritis.

Barnet Lemchen, Chicago; St. Louis University School of Medicine, 1908; member of the Illinois State Medical Society; for many years connected with the Chicago State Hospital; aged 66; died, June 18, of coronary thrombosis.

William Riley Pastor, Dixon, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; member of the Illinois State Medical Society; died, June 25, in a local hospital, of cerebral hemorrhage.

George Henry Simmons, Chicago; Hahnemann Medical College, Chicago, 1882; Rush Medical College, 1892; practiced medicine in Lincoln, Neb., 1884-1899; and in 1896 founded and edited the *Western Medical Review* which carried policies on medical education later developed under the American Medical Association. He was secretary of Nebraska State Medical Society from 1895 to 1899.

The Board of Trustees of the A. M. A. in 1899 elected him General Secretary, a position he filled till 1911, and Editor, 1899-1924. As secretary he was largely responsible for the reorganization of the Association, making eligibility dependent on membership in the State and constituent county societies.

As editor he succeeded Dr. John M. Hamilton when the subscription list numbered about 10,000. In 1901 the Journal began publishing annually information about medical colleges and later listed the results of medical examinations. In 1905 the Council on Medical Education and Hospitals was organized, followed by the Council on Pharmacy and Chemistry with its chemical Laboratory and Department of Propaganda for Reform, later the Bureau of Investigation.

The American Medical Directory, now in its 14th Edition, appeared first in 1906. Publication of the Archives of various specialties began in 1908 with *Internal Medicine*. The quarterly cumulative index of leading medical publications began in 1901; later combined with the Index Medicus. *Hygeia* was developed in 1923.

In 1921 Dr. Simmons was awarded the Distinguished Service Medal by President Harding following service as Major in the Medical Reserve Corps during the World War. In 1924 he became Editor and General Manager Emeritus.

Many of his editorials appeared annonymously but from time to time he published articles and exercised a decisive influence with officials and committees in promoting the growth of the Association.

His death occurred in St. Lukes Hospital, Chicago, September 1, 1937, aged 85, from cholecystitis.

Fred M. Wilbur, Galesburg, Ill.; Barnes Medical College, St. Louis, 1903; aged 60; died suddenly, June 23, of carcinoma of the esophagus and paralysis agitans.

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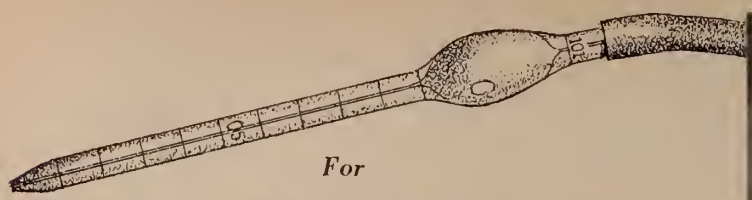
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Book Reviews

Obstetrics for Nurses. By Joseph B. DeLee, A. M., M. D., Professor of Obstetrics and Gynecology, Emeritus, University of Chicago; Consultant in Obstetrics, Chicago Lying-in Hospital and Dispensary; Consultant in Obstetrics, Chicago Maternity Center, and Mabel C. Carmon, R. N., Chief Supervisor and Instructor in the Birthrooms, Chicago Lying-in Hospital and Dispensary. Eleventh Edition, Revised and Reset. 659 pages with 292 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $3.00 net.

The eleventh edition of this work has undergone the most drastic revision that it has ever had during the thirty years since the book was first written. Sixty-eight per ceent of the pages have been changed.

New features of this edition is the rewritten chapter on the delivery room, the new material on home care, and the stress on preventive aspects.

Injuries and Diseases of the Hip. By Fred H. Albee, M. D., assisted by Robert L. Preston, M. D. With 100 illustrations, including 3 in color. New York. Paul B. Hoeber, Inc. 1937. Price, $5.50 net.

In this work the author has brought to the attention of the medical profession those surgical procedures which have stood the test of time, and which have contributed so largely to the reclamation of cripples suffering from hip conditions.

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(Continued from page 320)

If tularemia infection is kept in mind, the diagnosis can almost always be made so the serum treatment can be begun before the twelfth day. Intradermal tests have been found positive in about 300 tests, failing only twice where the patient was in a dying condition. Following the administration of the serum there is a marked recession of fever, general malaise and psychic disturbances with a marked reduction in the size of the lymph nodes. Serum therapy prevents establishment of chonic tularemia.

Bronchitis and bronchopneumonia have occurred frequently, pneumonia in 32 patients. Most of the patients who have died of tularemia have pulmonary lesions at death.

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It is felt that the disadvantage of serum sickness may be lessened after it is more carefully studied.

Prevention and control. Several precautions are important in avoiding infections. First, wild rabbits that appear to be too tame should be left alone; second, rubber gloves should be worn while handling or dressing these animals; third, meat of game must be thoroughly cooked before it is eaten as cooking will destroy the organisms; the cold storage laws of most states have provisions covering the storage of game such as rabbits; it is not usually required that they be refrigerated for any particular period of time; according to Rosenau, refrigeration for four weeks destroys the infection; fourth, contact with wood ticks should be avoided if possible, especially in zones known to be infected.

Dr. F. L. Barthelme (in closing): In the paper I confined my remarks to treatment. However, there are certain very important factors that should be mentioned. Very frequently you will find the following: An individual will have what the doctor thinks is an ordinary infection on his hand. He will treat it along and the patient gets sicker and then dies. The doctor says she died from septicemia and very frequently it is tularemia.

Dr. Munson brought out a very important point: that it does very little good to test the patient for the first ten days for tularemia because the agglutination test is almost always negative. I knew of a patient who had been ill for eight days. The agglutinin test was made and was negative. The patient was given metaphen and after four days he said he felt fine. I kept on making repeated examinations and on the fourteenth day got a report back that it was positive in 1:640.

I believe that these organisms can remain for a while in the body. I had a patient who came into the office and I thought he had a granuloma inguinale. It was a very typical case. I made a test which proved that he was tularemic. I tried to figure out where he might have picked up the infection. He had a sore on the lower calf and I found out that he had been out hunting; he had gotten no rabbits but had snagged his leg on a corn stalk, and that is where he got the infection.

Another important thing is that metaphen has been used in four cases of undulant fever with complete relief of all symptoms in twelve days.

Book Reviews

The Traffic in Health. By Charles Solomon, M. D. New York. Navarre Publishing Company, Inc. 1937. Price, $2.75.

Dr. Charles Solomon has given to the layman a book written understandingly, simple and clearly, with a comprehensive sympathy for the average man and woman who yearn to meet their present-day problems fairly and accurately. That great common denominator, the average family, with its little and big difficulties, its temptations and its income, will find answer to so many perplexing problems.

International Clinics. A quarterly of illustrated medical lectures and especially prepared original articles on treatment, medicine, surgery, neurology, pediatrics and all the specialties that go to make up the practice of medicine in all its phases by leading members of the medical profession throughout the world. Edited by Louis Hamman, M. D. Vol. III. 47 Series. 1937. Philadelphia, Montreal, London. J. P. Lippincott Co.

Recent Advances in Industrial Hygiene and Medicine. By T. M. Ling, A. M., B. M. (Oxf.), M. R. C. P. (London). With 29 illustrations, Philadelphia. P. Blakiston's Son & Co., Inc. 1937. Price, $3.50.

In this work the author has brought together the modern advances which have been made in industrial hygiene as a compendium of all the latest work this book will recommend itself to all medical practitioners, not merely to works doctors and medical referees under workman's compensation act, to employers of labor, to welfare workers, to lawyers engaged in compensation cases.

Some Fundamental Aspects of the Cancer Problem. Edited by Henry Baldwin Ward. New York. The Science Press. June, 1937. Price, cloth bound, $2.50; paper bound, $2.00.

The purpose of this symposium on cancer was to bring together before a forum the fundamental work that is being carried on in this country towards the solution of this serious problem, and to afford an opportunity for an authoritative survey of the actual status of our scientific knowledge in this field.

The symposium was divided into a number of sessions each taking up some fundamental aspect of the cancer problem as indicated in the table of contents. The series of papers on the genetic aspects of cancer was designed to bring out the relationship of heredity and constitutional factors to the cancer problem. In another series of papers was reflected the tremendous activity in the field of the sex hormones and in the study of carcinogenic compounds. Other aspects of the

(Continued on page 32)

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Book Reviews

(Continued from page 30)

induction, stimulation and inhibition of tumorous growths were also included.

The strictly metabolic aspects of cancer tissue were also represented by a series of papers, including carbohydrate, protein and inorganic metabolism. This series of papers includes probably the most critical and thorough survey in the English language of the important work of Warburg and Meyerhof relative to the cancer problem. The recent developments in the field of radiation demanded considerable attention for various aspects of this field. Papers on high energy radiation, quality of x-rays, neutrons, alpha particles and radium were therefore included.

Some limitation on the scope of the symposium had to be set and although certain aspects were not included which it might have been desirable to present, the survey without doubt gives an authoritative picture of the present status of the cancer problem. The views and conclusions of some our most outstanding workers in the field as given in this survey should be of value not only to the specialists in the field of cancer but to every one interested in the problem. Much material is also present in these series of papers of interest not only to workers in the field of cancer but also to those interested in carbohydrate metabolism, protein metabolism and inorganic metabolism.

EMOTIONAL ADJUSTMENT IN MARRIAGE. By Le Mon Clark, M. D. St. Louis. C. V. Mosby Company. 1937. Price, $3.00.

PSYCHIATRIC NURSING. By William S. Sadler, M. D. In collaboration with Lena K. Sadler, M. D., and Anna B. Kellogg, R. N. St. Louis. C. V. Mosby Company. 1937. Price, $2.75.

This text book has been written to meet the requirements of the recently enlarged courses in psychiatric nursing which has been adopted by most of the American schools of nursing.

No attempt is made to deal with organic nervous diseases. The subject of neurologic nursing is a large one in itself and really does not belong to the special field of psychiatric nursing. This work does not exhaustively discuss non-psychiatric treatment such as massage, hydrotherapy, exercise, diet and even occupational therapy.

THE HUMAN BODY. By Logan Clendening, M. D. Third Edition: Corrected, enlarged and rewritten. New York. Alfred A. Knopf. 1937. Price, $3.75.

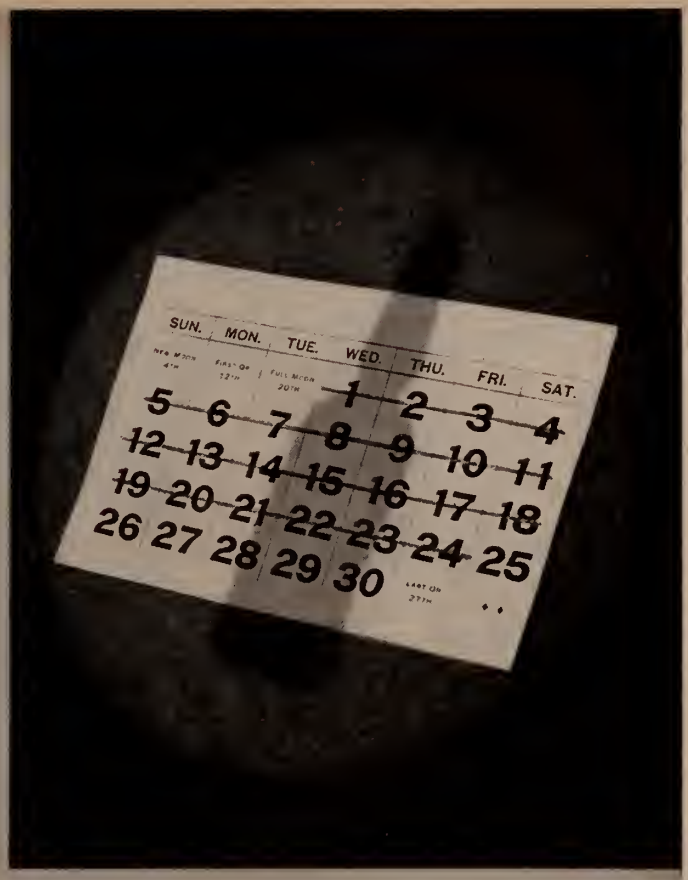
This work has been entirely reset and printed from new plates incorporating the recent discoveries and practices in medicine and physiology, including new material on: The Heart, The Blood, Morbid Inheritance, Twins Vitamins, Sex, Kidney Diseases, Endocrine Glands, Diphtheria, Typhoid, Venreal Diseases, Span of Life, etc.



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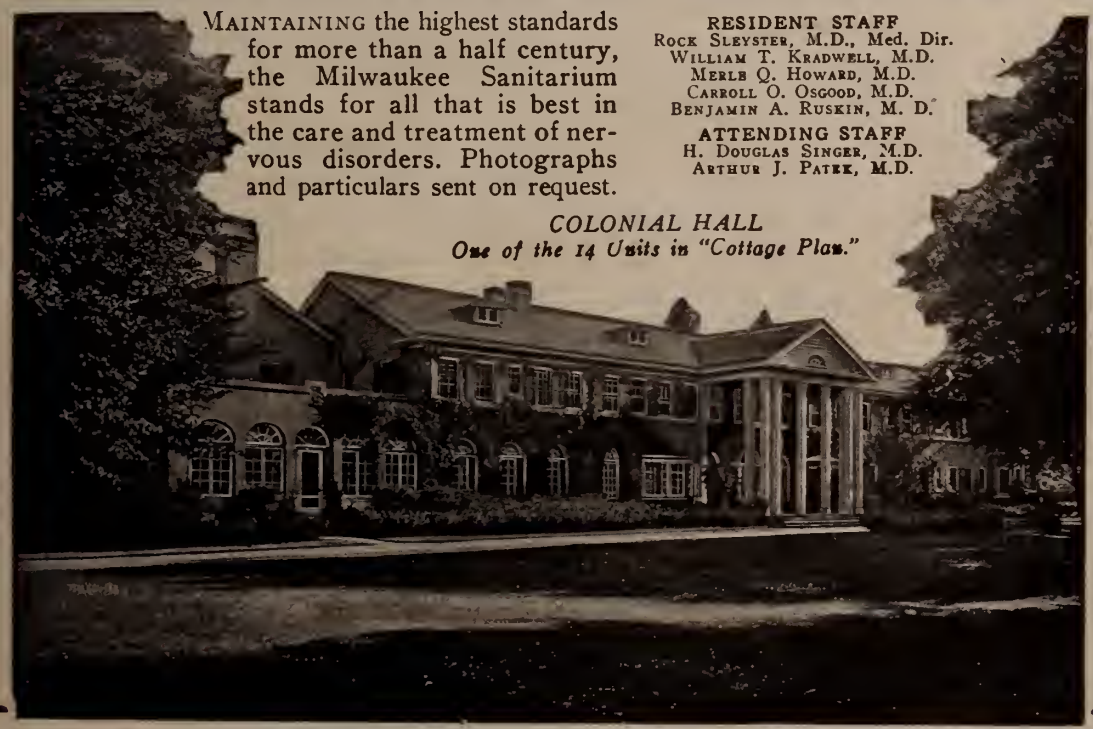
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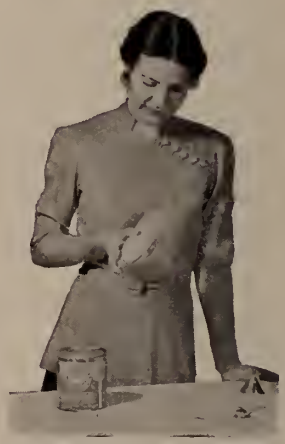
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(1) 1935. The Lancet 228-I, 71
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(4) 1933. J. Lab. & Clin. Med. 18, 484
(5) 1937. The Avitaminoses Eddy and Dahldorff William and Wilkins Baltimore
(6) 1936. J. Nutr. 12, 405
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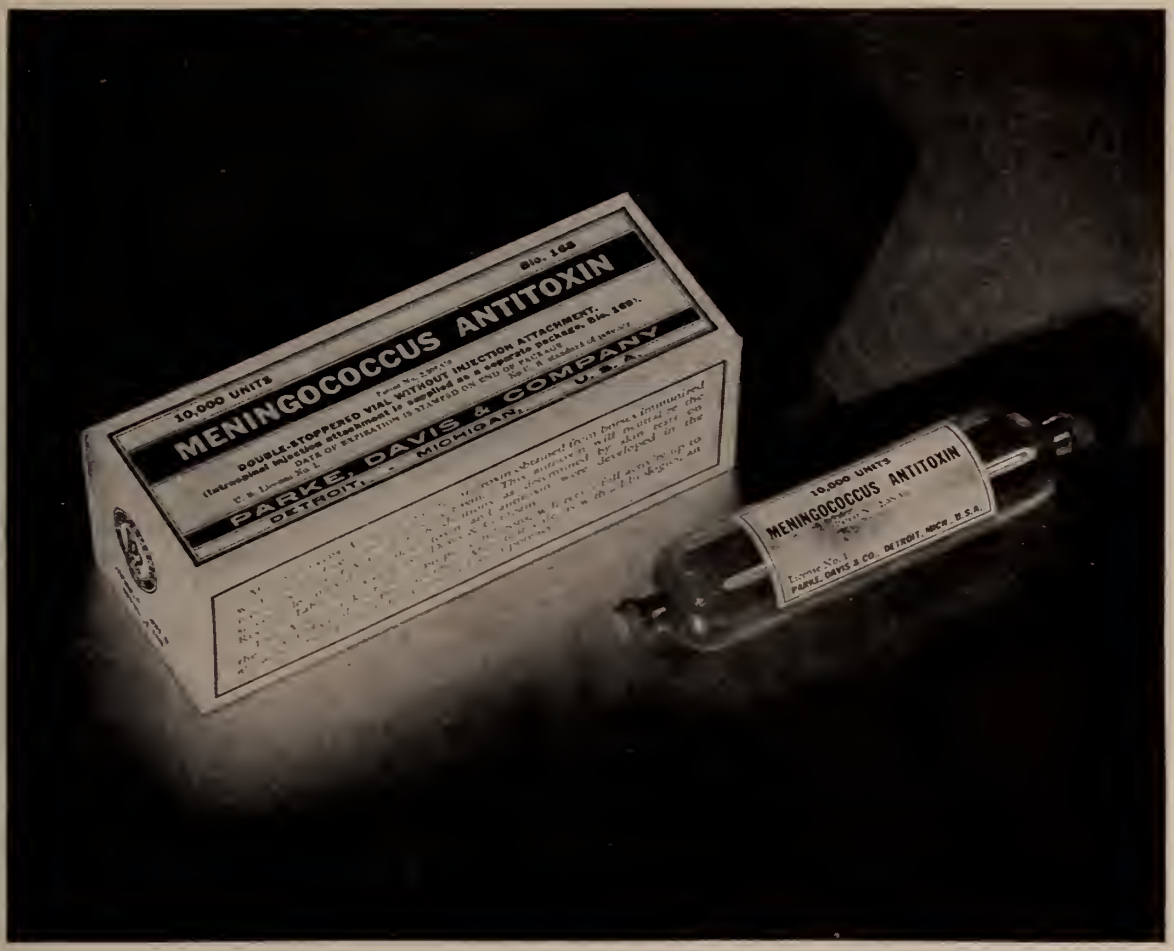
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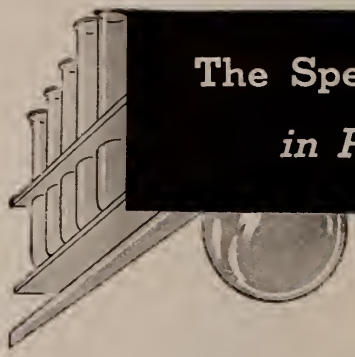
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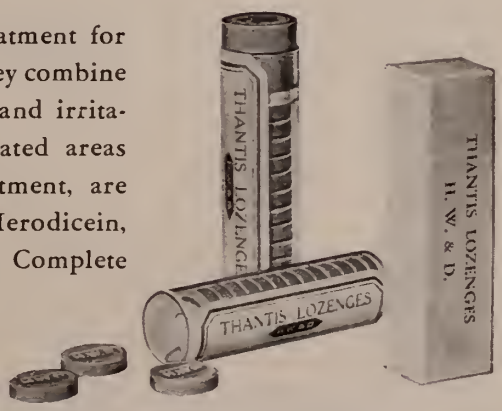


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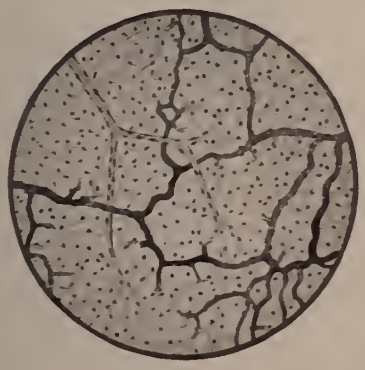
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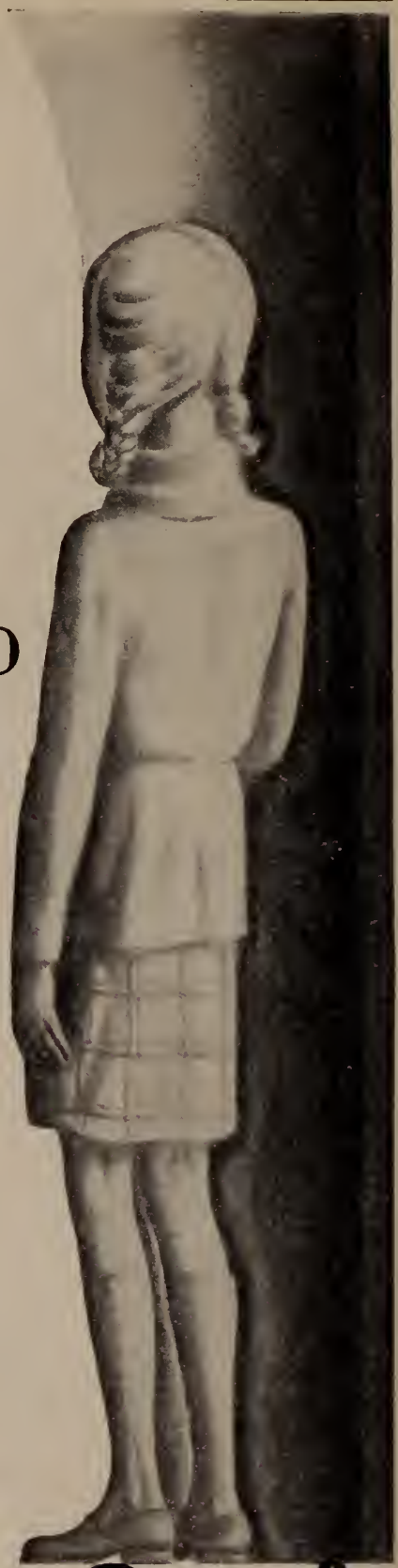


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Editorials

A PROPOSED AMENDMENT TO THE COLORADO CONSTITUTION WOULD AUTOMATICALLY CANCEL ALL MEDICAL, DENTAL, NURSING, LAW AND EVERY OTHER PROFESSIONAL LICENSE IN THE STATE

Demonetization of silver was the first contemporary disaster to overtake the grave western state of Colorado, and to break down its fences for progress. Trouble after trouble has since overtaken the commonwealth—one of the younger states in the Union since its admission dates back only as far as 1876. Industrial arguments, political confusions, dust storms and other ebullitions of economics or of nature are followed now by what seems to be the complete communization of Colorado. New legislation would appear to be about to sweep away the bulk of the safe and sane statutes with medicine being the wooden horse to drag the enemy, concealed and dangerous, within the gates, and the cults booting the horse from behind. Word from Colorado announces that petitions are now in circulation througout Colorado's extensive area to initiate an amendment to the Constitution of Colorado, which if adopted will effectively repeal the *Medical Practice Act; at least temporarily cancel every professional license in Colorado; repeal the bulk of the public health laws, destroy the Basic Science Law and open every hospital and all insurance and compensation practice to every conceivable type of healing cult.* What price the confusion of tongues? Chaos worse than Babel will result in the professions of medicine, law, dentistry, nursing, engineering, accounting and all other professions ad infinitum if this purposed amendment goes through. It is expected from the number of signatures already obtained to the petitions in circulation that the constitutional amendment will appear on the ballot for the 1938 general election. The amount of money that all the charlatanistic cults are pouring into this effort to achieve this sad end is almost be-

yond the imagination. Public statements of the backers of the endeavor evidence plainly that the chief objects in view are the destruction of those statutes designed to protect the public by licensing professions under state regulation, with the attack of course PRIMARILY AGAINST MEDICINE, which it must be confessed looks much like a gentle touch from Washington, D. C. Staid Colorado citizens—and some few such remain—state candidly that this is the most vicious attack ever aimed in Colorado at medicine and public health. This is the rankest of medical anarchy, and it is not Colorado's problem alone. It is the problem of every state in the Union, for what can happen in Colorado can and will happen anywhere.

The Colorado State Medical Society after eight years of agitation, in May, 1937, secured passage by the General Assembly of a Basic Science Law which was signed by the Governor and became a law July 1, 1937.

Shortly afterwards a group of chiropractors started the present movement to circulate petitions for the law's destruction. It is interesting to note and to preserve for file purposes both the title of the amendment and the admendment itself intended to be submitted at the general elections of November, 1938, and as proposed by the sponsoring cults and which run "A constitutional amendment giving to every person in Colorado the exclusive right to choose any state licensed healer or doctor in the following instances:

"1, for any examination required by the state, either mental or physical; 2, for any treatment of disease or curative service in connection with state compensation insurance or any other insurance benefits; 3, for any treatment of disease or curative service rendered such person while an inmate, patient, or charge of any institution in Colorado, which is wholly or partly tax supported.

"Granting every profession recognized by the state, complete and exclusive control over the examination, licensing and regulation of the practice of all members of such profession, through its own legally constituted board."

"BE IT ENACTED BY THE PEOPLE OF THE STATE OF COLORADO:

The Constitution of the State of Colorado is hereby amended to include therein the following ARTICLE:

"Section 1. No person shall be denied the exclusive right to choose his own State licensed system of healing and doctor for State required examinations, or for therapeutic services in connection with State compensation or other insurance benefits, nor to choose his own State licensed system of healing and to have such service rendered him while an inmate, patient or charge of tax-supported or partially tax-supported corrective, therapeutic, eleemosynary or other public institution in the State.

"Section 2. No profession recognized by the State shall be denied the exclusive right to examine, license and regulate the practice of its own members through its own legally constituted board or authority.

"Section 3. This amendment shall be self-executing and the general assembly shall enact such regulatory measures as are necessary to carry out its purposes."

Legal opinion on this movement has been expertly cited as that, if this constitutional amendment be adopted, it will:

1. Definitely destroy the basic science law passed at the last session of the legislature.

2. Repeal virtually the entire medical practice act so far as it relates to the qualifications, examinations, licensing, regulation, and control of those who desire to engage in the practice of medicine and surgery, midwifery, and chiropody.

3. Will destroy all state statutes providing for the examination, licensing and regulation of the practice of members of every profession recognized by the state.

4. Will preclude all future action by this legislature in conflict with such amendment providing for the examination, licensing and regulation of the practice of every profession recognized by the state.

5. In all cases in which mental or physical examinations are required by the state law or regulations of the board of health, make it possible for the person so to be examined, to demand that such examination be made by a doctor of any state licensed school of healing or therapy of his choosing.

This will include not only lunacy inquisitions but also the treatment of lunatics after commitment, the treatment of all persons in any legal

place of detention, where the law at present provides for their examination and treatment.

In the class where examinations are required, will fall all examinations to ascertain whether or not persons are affected with venereal diseases, to-wit: food handlers, dairy workers, manicurists, barbers, beauty operators, etc. In any of these required examinations the person to be examined may demand that the examination be made by a practitioner of such state licensed school of healing as he sees fit. While the amendment refers specifically to public institutions, tax supported or partially tax supported, there are many cases in which public wards and charity patients are of necessity confined to private hospitals under an arrangement with town, city, county, or state authorities for the payment of such hospitalization and treatment; and to the extent that such privae institutions receive their pay from the town, city, county or state or branch of state government or department, they would be held to be, in our judgment, partially tax-supported in these instances, thus making it possible for such patient, though in a private institution, to demand that he be treated while in the hospital by a doctor of such state licensed school of healing as he might select. In all compensation cases, whether the insurance is carried by the state insurance fund or a private insurance company an injured person may, in the event of the adoption of this proposed constitutional amendment, demand that he be examined and treated by a practitioner of such school as he may elect.

It is possible that this proposed amendment may be construed to be broad enough to cover all cases of private insurance benefits, such as health and accident, and permit the insured to demand that his examination and treatment be made by a practitioner of any state licensed school of his own choosing.

"The second section of this proposed amendment 'granting every profession, recognized by the state, complete and exclusive control over the examination, licensing and regulation of the practice of all members of such profession, through its own legally constituted board,' necessarily raises the question: 'What is a profession?' and 'Who is included in such classification?' The state of Colorado provides for the appointments of certain boards with power to examine and license a large number of trades or vocations.

"If any of these vocations should be held to be a profession, the proposed amendment would be in conflict with the statutes creating such boards and providing for such examination and license.

There is no uniformity of judicial decisions upon this question, and although a profession in the narrower sense presupposes special study and learning, and mental rather than manual skill, nevertheless, a great variety of trades have been construed by some courts to be professions and in other courts the opposite opinion held. We are unable to predict what the views of our own courts might be in this respect, but under the proposed amendment, any vocation or calling which may be recognized by the state as a profession will have the complete and exclusive control of the examination, licensing and regulation of the practice of its members; and any legislative regulations now in effect for safeguarding the public will, to the best of our belief be completely nullified."

"Section 3 of the proposed amendment declares that it shall be self-executing and that the General Assembly shall enact such regulatory measures as are necessary to carry out this purpose.

"If it is self-executing, the moment it becomes a part of the fundamental law of the state, that is to say, a part of the constitution itself, all existing, conflicting legislation will be instantly superseded and made invalid and a state of complete chaos will result."

LAY AGITATORS ARE ATTEMPTING TO SET UP AN ENFORCED REGIMENTATION AND PATERNALISM THAT MUST BY THEIR VERY NATURE DESTROY RATHER THAN PROTECT

Intensive public agitation for regimentation of the medical and allied professions through legislation in favor of compulsory health insurance, state medicine and devious other schemes is scheduled for the forthcoming session of Congress and throughout the year 1938. Proponents of the schemes hope to make this iniquitous state of affairs a federal as well as local measure throughout the United States.

When the Volstead Act was wiped off the statute books by a nation incensed at the results of a measure both ill-advised and, on the part of the nation's voters, at least, a *highly misunderstood* measure at the time it was put to the ballot—general opinion was that the United States was through with "noble experiments." This crusade for the made-in-Europe, un-American and unnecessary infliction upon the United States of compulsory health insurance stands witness to the fact that when it comes to a question of freak legislation, all America needs a stiff lesson in the old Yankee principle of *"Caveat Emptor."*

No matter how canny we are in business or romance, the fact remains that the average American will buy any kind of legislation at any time if he thinks it sounds well. Perhaps this is not surprising in a land where "patent" and "proprietary" nostrums flourish as the "green bay tree." When it comes to a choice between quack nostrums and compulsory health insurance there is something to be said in favor of the nostrum. The purchaser wrecks only his own health and depletes only his own pocketbook thanks to the element of volition in the use of such messes. When compulsory health insurance is "legislated" upon an innocent public, there will be no escaping its tentacles, nor the ever increasing burden of taxation for the upkeep of a lay bureaucracy whose function in life, outside of drawing fine pay for a fat job will be to play Simon Legree to scientific medicine.

That is the long and short of the matter. The appeal of "health insurance" is an appeal to the emotions. Economically and scientifically it is unsound. The average man or woman who is attracted by the richly alluring slogans of the crusaders is of the idea that this public health insurance will be as magical as the waters for which Ponce de Leon sought—and died in the seeking. The idea of this public health insurance is ladled out to the populace, as a young Golconda that can be obtained for the asking.

That something cannot be had for nothing, that a man can take out of his pocket only as much as he puts in, never occurs to the mislead citizenry that still does not realize that the increase in taxation burdening the nation is due to the extravagant socialistic projects and overcentralization that place entirely too large a portion of the people on tax-exempt government payrolls. Europe is accustomed to such bureaucratic grabs, to escape which the early American colonists suffered hardship and death in the founding of this democracy.

Never in the hey-day of German medicine (and Bismarck and the Prussian empire begot the health insurance scheme) was there such an equable medical system as has always maintained in the United States—a system made to fit American needs and emergencies. Social construction, economic mechanics and all the functioning of daily life in the United States are as different from that in the old world as is right from left. What fits Europe and European standards of living is a misfit here.

Looking more closely into the situation, it appears that compulsory health insurance *does not even fit Europe, the country for which it was custom-tailored.* Even the warp and woof from which the scheme was manufactured is incompetent to the point of worthlessness. *To begin with, statistics evidence that there is no diminishing of sickness or lowering of mortality rates in those countries with health insurance while on the other hand the cost increases at an appalling ratio.* According to these statistics (which have been repeatedly printed in this journal and others) public health insurance stands indicted by its own functioning. Peoples who possess it pay too much for nothing.

Frederick L. Hoffman, LLD, ranking as one of the foremost statisticians of the time, has declared aptly that the death rate is the ultimate test of skill and attention in medical practice.

(*Taking cancer alone as an example, to refresh the memory from figures printed here previously, in England and Wales under health insurance in* 1934 *the death rate was* 156.3 *per* 100,000. *In the United States, without public health insurance it was only* 106.3. *In England and Wales, anemia-chlorosis showed a death rate of* 6.6 *per thousand, as against* 3.1 *in the United States. As to rheumatic fever, the rate was* 3.4 *in England and Wales as against* 1.8 *for the United States.*)

Here is a definite comparison that can be carried on almost without end, in practically any group of ailments, and it shows better results without health insurance than with it. And, that too, without the onus of increased taxation, ever augmented bureaucracy and overdeveloped public dependency which are the in-

evitable concomitant of public and compulsory health insurance or state medicine.

Quoting from Dr. Hoffman, let it be emphasized that "the worst feature of compulsory health insurance is that it lowers the standards of medical practice, hinders medical progress and brings about the regimentation of the medical profession to virtually the standard of a labor union. . . . Further mass treatment reduces the adequate consideration of serious or chronic cases, which consideration is then often very superficial due to the demands upon the doctor for the treatment of less serious complaints. . . . In a comparison of forty-two causes of death between England and Wales with compulsory health insurance, and in the United States where compulsory health insurance does not maintain, all but ten were more common in England and Wales than in this country. Hence the general conclusion must be that most of the principal causes of death prevailed at a lower rate in this country than in England and Wales under compulsory health insurance."

Dr. Hoffman has compiled lengthy tables to illustrate his tests of comparative mortality figures, contrasting panel practice (Compulsory Health Insurance) and private medical practice. Made without prejudice and in an earnest effort to discover the truth the results are all against compulsory health insurance as an assert to American life. Rather was it found to be a decided liability and a drain upon income and surplus such as will tend to lower the standard of American living.

The United States has grown to independence and power through systems that have made for self-reliance on the part of its citizens rather than a national leaning upon public funds, and it is this dependence upon public funds which is one of the keynotes of compulsory health insurance. What this current crusade to install compulsory health insurance in the United States involves then, is the socialistic, ay the almost communistic creed of an enforced paternalism that must by its very nature destroy rather than protect. Compulsory health insurance, like all socialistic ideas, is dear to the heart of the social worker, whose very livelihood arises from mass undertakings encouraging public dependence. Under any system of compulsory health insurance medicine becomes the prerogative of the laity rather than the profundity of a profession.

WHY RABIES?

England, blessed with the British love of dogs, stands proudly without the blemish of a single case of rabies to blot its 'scutcheon. England has achieved this standard by insisting that all visiting dogs shall be kept in a strict quarantine for a lengthy period of time. As a consequence dogs and men need have no fear of the dread hydrophobia. As a preventable disease hydrophobia should not be listed among the perils of life in the advanced nation of the United States. Ever since last autumn the disease has been slowly but steadily on the increase.

The worst of it is that no one knows with certainty how many individuals have been infected. The frequency with which children are bitten by stray dogs and the frequency with which, especially among the poorer neighborhoods, the supposedly trivial injury is either neglected or not even reported at home or at school makes the rabies menace all the more dangerous.

It is true that many dogs who snap and bite are free from rabics and their worst affliction is a surly, mean disposition. But it is equally true that any dog that bites anybody should be kept under observation for a fortnight. If the dog is alive at the end of that time he has not had rabies and the victim need have no fear.

BUT, if the animal is a stray that cannot be observed, or if he dies of rabies before the period of fourteen days has ended those persons that may have been bitten at the onset of the disease in the animal face a sad situation. Protection from Rabies comes from immediate application of the Pasteur treatment. There are men still alive in Europe and in this country who remember the tragic experiments of Pasteur in his search for the serum. Any one who ever walked the corridors of Paris hospitals and watched the frightful agonies of rabies infected men—strong hardy men from the woods or the country districts where rabies infected dogs or wolves had bitten them—is shocked beyond belief at those who scoff at the "danger from dog bite."

Today in Illinois, yes and throughout the United States, rabies is more prevalent than it has ever been. All cities with ordinances that

dogs should not be allowed on the streets unmuzzled should enforce those ordinances as well as those ordinances insisting that dogs should not be taken abroad off a leash. No matter how gentle, nor how kind, nor how much of a trusted family pet a dog may be, the best of veterinarians will agree in the statement that "You never can tell what a dog may do, especially in the presence of a strange dog."

Especially is this true of city kept dogs, whose lives are necessarily on an artificial basis. The best of them have been known to turn berserk. A friend of the editor's who had for years loved a black chow dog that was devoted to her is a cripple today. One day, without warning, the dog went amuck, leaped upon her and so tore the ligaments of both arms that she has never recovered from the injury.

A dog is one of the best friends that man can have. No friend is more loyal and few as much so. Because a dog is such a friend of man he deserves the best of consideration and treatment from man whom he regards in the light of a god. And no man dare call himself a friend of any dog who does not take upon himself a share of responsibility in the task of stamping out rabies in the United States.

What England has done, certainly the United States can do.

And England has stamped out rabies.

THE PASSING ON OF DOCTOR SOLOMON JONES

Surgeons in many parts of the world, as well as American medical men in great numbers, were deeply grieved to learn of the death, September 25, 1937, of Solomon Jones, of Danville.

Dr. Jones had been recognized recently by eminent surgeons of America and of foreign countries, in the formation of an International Society of Surgeons.

He had served as secretary and president of the Vermilion County Medical Association, and was a member of the Illinois State Medical Society, a member also of the American Medical Association; of the American Medical Association of Vienna; of the Tri-State Post-Graduate Medical Association of America; of the American College of Surgeons; the American Board of Opthalmology and Laryngology; of the Consistory, 32 nd Degree Masons; of the First Presbyterian Church, and of the Aesculapian Society of Wabash Valley. An earnest civicist, Dr. Jones served on the medical staffs of various hospitals and other medical and sociological institutions in his community, and also had been an inspiring member of the school board of Danville, Ill. Death resulted from a paralytic stroke, sequala of a cerebral hemorrhage, that had occurred exactly a year and a day prior to his passing.

Of pioneer stock, Dr. Jones was born June 2, 1872, on an Indiana Farm. His father, James Madison Jones, also had been born on a farm close to that same Perryville, and was a well known farmer and stock raised. His mother, too, the late Ellen Skelton Jones, was of that sterling class of American citizenry indigeneous to the "valley farms" west of the Appalachians.

A sound education in grade schools of Highland Township was followed by graduation from high school, and subsequent attendance at Indiana State Normal School. After several years of pedagogical practice, Solomon Jones took up the study of medicine and in 1902 was graduated from Illinois Medical College of Chicago. At the beginning of 1903, Dr. Jones began medical practice on South Hazel Street, Danville, Ill. In 1906 he went to New York to specialize in eye, ear, nose and throat, at the New York Post Graduate School.

In 1927 Dr. Jones suspended his American practice for a time and pursued further study at the University of Vienna.

A few months after his diploma of "M.D." had been received Dr. Jones was married on Nov. 18, 1902, to Ella A. Van Veter. Their son, Jerome V. Jones is living now on the old homestead near Perryville. Mrs. Jones also survives as do also one grandson, and three brothers and two sisters, V. M. Jones, county clerk of Vermilion County; Victor Jones and Cortez Jones, both of whom reside near Perryville, Mrs. Ella Jones Randall, of Union Corner, and Mrs. Leah Jones Houser, formerly of Central Park but now resident in California. Dr. Jones had resumed his practice some six months after his first stroke and seemed recovering satisfactorily until about a week before his death.

Young in years for a man of science, Dr. Jones' demise leaves another, and an almost irreparable gap in the ranks of the thousands of

faithful followers of the practice of medicine, who have done so much for the American people. These "general practitioners" even when they become specialists of the keen calibre as was Dr. Jones, have had a grounding in human nature as well as in human physiology that sets them high and upon a firm foundation in the great Temple of Human Healing and Human Welfare. Their farm training, with the rigors and the discipline incident to American farm-life sixty, fifty, forty, aye even thirty years ago refined the earnest student of men and books with the same vigorous strokes by which a plane smooths rough lumber, and sizes the wood into timber with which to build an harmonious edifice. Many physicians of skill and power have come from the ranks of "Farm boys." Among the thousands in that class, none ever had a more devoted following—nor more justly so—and none ever lead a life of quieter sacrifice and more intense devotion to the weight of "Daily Duty" than did Solomon Jones. *Requiescat In Pace.*

BENNETT COLLEGE OF ECLECTIC MEDICINE AND SURGERY SURRENDERS CHARTER

July 19, 1937, Attorney-General Otto Kerner started proceedings (Docket number 36 C 13628) of ouster against the Bennett College of Eclectic Medicine and Surgery. The college was incorporated on or about March 25, 1869. The ouster proceedings was before Walter J. La Buy, Judge of the Circuit Court of Cook County, the clerk of said court affixed the seal of the Circuit Court at Chicago in Cook County, completeing the ouster on the 23rd day of October, 1937.

MEDICAL MAN BECOMES RECTOR OF UNIVERSITY OF PARIS

University history has been made in France with the nomination of Dr. Gustave Roussy to the highest educator's post in the country, outside of supervising functions, namely the position of Rector of the Academy and University of Paris. The new Rector was born in Switzerland, where his family had been residing since his ancestors left France after the Edict of Nantes, and was reintegrated into French citizenship. From the time when he was an interne in the Paris hospitals in 1902 he has had a distinguished medical career, which began as director of pathologic physiology research at the College de France. During the war he was ambulance doctor with the X Army, then head of the neurology center of the Lorraine Army and finally head of that of the VII Region. In 1925 he succeeded to the chair of pathologic anatomy at the University of Paris; in 1933 he was elected Dean of the Faculty of Medicine.

LEUKEMIA OF STOMACH PRODUCING HYPERTROPHY OF GASTRIC MUCOSA

Leo G. Rigler, Minneapolis (Journal A. M. A., Dec. 19, 1936), declares that leukemic infiltration of the stomach may produce a striking picture of enormously enlarged gastric rugae resembling the convolutions of the brain. Involvement of the duodenum is usually found. Radiation therapy will cause a marked reduction in the size of these folds and a corresponding improvement in the gastric symptoms is presented by the patient. The roentgen signs in the stomach may be obtained regardless of whether or not blood changes are present. Other lymphogranulomas may possibly produce a similar appearance. Chronic hypertrophic gastritis of extreme grade may simulate these roentgen appearances. Radiation therapy may possibly serve as a therapeutic test, as it does not appear to produce any change in the symptoms or roentgen signs in these cases.

GENERAL ACQUIRED ANHIDROSIS: REPORT OF CASE AND INVESTIGATIONS OF HEAT REGULATION AND CIRCULATION

Mogens Fog, Copenhagen, Denmark (Journal A. M. A., Dec. 19, 1936), reports a case of anhidrosis in a patient in whom cessation of the function of sweating occurred after he had previously been perfectly normal in this respect. The patient, aged 27, until a long febrile illness (paratyphoid fever) six years prior to the examination had had normal sweat secretion. He complained of extremely distressing symptoms under circumstances in which sweat secretion normally takes place. By means of a series of pharmacologic and physical tests the author verified the patient's statement that he could not perspire. A biopsy from the skin showed that about one half of the sweat glands were present while the other half had undergone degeneration. By means of a number of muscular activity experiments it was determined that during increased heat production in the body the patient's heat regulation was normal but that signs of circulatory insufficiency arose which must be ascribed to extreme vascular dilatation in the skin. This forms the basis for a compensating, excessive loss of heat through conduction and radiation. Continued observations of the patient during two years and a half showed that the symptoms remained unchanged.

MEDICAL ECONOMICS

H. M. Camp, M. D.
E. P. Coleman, M. D.
John R. Neal, M. D.
I. H. Neece, M. D.
W. M. Hartman, M. D.

Edited by the Committee on Medical Economics of the Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

R. K. Packard, M. D.
Ralph Peairs, M. D.
C. B. Reed, M. D.
C. S. Skaggs, M. D.
C. E. Wilkinson, M. D.

Address all letters and communications to the Chairman.

The Chairman of the Committee on Medical Economics of the Illinois State Medical Society is enjoying a well deserved vacation in Europe, and at his request, the Secretary is pinch hitting for Dr. Hamilton. Although he stated before the take off from the Eastern port that he was going to look around and not have any definite aim in his European visit more than to enjoy the first real vacation in years, it is the opinion of your pinch hitter that Dr. Hamilton will come home with many ideas relative to sickness insurance schemes and that he will be able to tell his many readers in the near future what they might expect under a similar system here.

During the past weeks we have been literally besieged with resolutions opposing any basic change in the manner of providing medical care in this country, and it is quite evident that the American physicians and the medical societies are thoroughly aware of the dangers on all sides. We have believed for a long time that most of the proponents of these various plans are more interested in getting the opinions of the medical profession divided than in actual attempts to get some individual plan developed through legislative activities.

All thinking physicians and most of our lay friends are opposed to any socialization schemes in medicine, especially when they know how these various plans have been operating in other parts of the world. They know that mortality and morbidity statistics have been improved more extensively in this country than elsewhere; that we have the lowest death rate of any of the larger civilized countries on earth, and that the majority of medical developments of recent years have come from our own country.

The plea has been made repeatedly by those interested in some new plan to provide medical care for our people that the United States is lacking in preventive medicine because the American physicians pay less attention to that important subject than to the scientific application of clinical procedures.

With the many immunization campaigns in every community throughout this country, with organized efforts for many years to conquer tuberculosis, cancer and other human ailments, with the work of our Health Departments in cooperation with the medical profession to stamp out contagious disease, this statement is entirely unwarranted. Nowhere, under a system of governmentally controlled medical practice, do we see so much work done along these important preventive lines as in the United States.

The Illinois State Medical Society and its members have enjoyed a most cordial relationship with the Illinois Department of Public Health for many years, and all directors of the State Department for years have been active members of their State Medical Society. We have been decidedly of the opinion that nowhere in this country can one find a more competent group of Public Health officials than we have in the personnel of the Illinois Department of Public Health. Every physician in Illinois should do his or her part in maintaining this excellent cooperation.

We have heard much about the pre-marital physical examination as a requirement in Illinois for those people contemplating the state of matrimony. We have asked Dr. John R. Neal to analyze the Saltiel Bill which prescribes the methods of making the necessary pre-marital examinations.

Dr. Neal's analysis should be of much interest to the medical profession in Illinois and elsewhere. When adjoining states enact suitable legislation so that those desiring to evade the Illinois law may no longer go to other states to be married, the real benefits of this type of legislation will be generally received.

The Committee on Medical Economics intends to have regular conferences during the

winter months and we urge the county societies to keep the important problems in medical economics in mind when developing future programs.

Miss Jean McArthur, secretary of the Educational Committee, and Dr. Robert S. Berghoff, chairman of the Scientific Service Committee, are always willing to aid all societies in procuring speakers for their meetings.

The Educational Committee with Miss McArthur as Secretary will assist in planning either scientific or economic programs, and also in arranging for speakers to talk before lay groups in any community. At this time it seems most important to get reliable information on medical economic problems before as many dinner clubs, professional, business and woman's clubs as possible.

Every county medical society can be of real service in this program by having speakers scheduled to talk before these many groups to tell them in lay terms what basic changes in the manner of providing medical care to the American people will mean to them and their families. In many communities this information has not been given to the people who are vitally interested in the subject, and who will invariably appreciate any assistance that may be given them.

It has been announced that a special session of Congress will be called early in the winter and no one knows at this time what type of legislation may be introduced which will affect the practice of medicine. During the past months there have been rumors that certain Senators and Representatives have been studying various plans for changing the practice of medicine, and they may introduce these plans in the form of bills at the coming session, which makes it more imperative that every physician should get all available information on the subject.

THIS IS THE TIME FOR ALL PHYSICIANS TO REMAIN FIRM IN THEIR OPPOSITION TO ANY BASIC CHANGE IN THE AMERICAN SYSTEM OF THE PRACTICE OF MEDICINE.

Harold C. Camp, M. D.

CRITICAL ANALYSIS OF THE ILLINOIS HYGIENIC MARRIAGE LAW

A critical analysis of the recent amendment to the marriage laws of Illinois which requires a physical examination for venereal diseases of persons about to marry, indicates that the measure leaves much to be desired. With only three months of practical experience under the new amendment, a multitude of knotty problems in administration have arisen. A satisfactory solution of many of these problems seems remote except by legislation.

The principal paragraph of the amendment reads as follows:

"Section 6a. All persons desiring to marry shall within fifteen (15) days prior to the issuance of a license to marry, be examined by any duly licensed physician as to the existence or non-existence in such person of any venereal disease, and it shall be unlawful for the county clerk of any county to issue a license to marry to any person who fails to present for filing with such county clerk a certificate setting forth that such person is free from venereal diseases as nearly as can be determined by a thorough physical examination, and attached thereto laboratory reports of microscopical examination for the gonococcus for gonorrhea and the blood Wassermann test or Kahn test for syphilis. Such laboratory examination shall upon request of any physician in the State be made free of charge by either the State Department of Public Health or the Health Department of cities, villages, and incorporated towns maintaining Health Departments."

First and most important among the factors which make difficult the satisfactory functioning of this new amendment is a lack of centralized administrative authority. As may be observed from the quotation, the enforcement of the law is entirely in the hands of county clerks, of which there are 102 in the State. No State department is charged with any duty or responsibility of enforcement. This makes uniformity of practice almost impossible with reference to any provision susceptible of more than one interpretation. It would seem desirable to make the State Department of Public Health responsible for the administration of the law and to give that Department authority to establish minimum standard regulations with respect to the technical phases of the medical examination and the required laboratory tests. This would make possible not only uniformity of practice but also a fairly accurate appraisal of the functioning of the law.

"Any duly licensed physician" is authorized by the law to give the physical examinations. Broadly interpreted, this would qualify any duly licensed physician in the world. The attorney general of Illinois has ruled that it qualifies os-

teopaths to make the physical examination. No ruling has been given as to drawing blood for the test for syphilis. Presumably this is a surgical procedure and osteopaths are not licensed in Illinois to practice surgery.

While perhaps desirable to permit licensed physicians in other States to make the examinations and execute the medical certificates, it would seem wise to set definite limitations in that respect. The Sangamon County Clerk has expressed the attitude that medical certificates executed by qualified nonresident physicians are acceptable to him only if the persons concerned in the proposed marriage are also non-residents. This seems like sound practice but may not be strictly legal under the present law. Clerks in counties that border other States are in a different situation and would no doubt be justified under many circumstances in assuming a different attitude. As the law now stands, unscrupulous practitioners might specialize in prenuptial physical examinations across the State line and do a lively business in much the same way as the clerics and magistrates at Crown Point and other places. Such practice would apparently be within the letter of the law and County clerks, especially in border counties, would have no choice but to accept the certificates and in any event would probably be disinclined to reject them. A more definitive qualification of physicians or the investment of the State Department of Public Health with authority to make general rules and regulations is needed to improve the law on this point.

With respect to blood and microscopic tests, the law states merely that to each medical certificate much be attached "laboratory reports of microscopical examination for the gonococcus for gonorrhea and the blood Wassermann test or Kahn test for syphilis." No qualification concerning the character or location of the laboratories which may make the tests appears in the law. Presumably any laboratory in the world which so desired could undertake the execution of the tests and reports therefrom would be valid according to the letter of the law. The blood tests, moreover, are specifically limited to Wassermann or Kahn. Other tests, the Hinton, for example, might prove to be more practical from several viewpoints.

The law does not state specifically that the required laboratory tests shall be regarded as an integral part of the physical examination. A literal interpretation of the text of the law would appear to make legal the reports of laboratory tests which had been made at any time prior to the filing of the medical certificate. The Sangamon County clerk has said that he interprets the law to mean that the laboratory tests are a part of the physician's examination and must therefore be executed within fifteen days prior to application for license. This attitude might not hold in court, however.

Nothing is said in the law concerning the technique of taking specimens for the laboratory tests. So far as blood is concerned, no valid question arises, specimens taken from any part of the body being equally suitable for diagnosis. Smears for gonococci, however, should be taken from the genital organs to be of value in detecting gonorrhea and even then the technique of taking the smear may be of considerable importance. The law requires merely a report "of microscopical examination for the gonococcus for gonorrhea." A smear taken from the secretions of the mouth or nose or of any other organ of the body would therefore satisfy the letter of the law.

Some county clerks have assumed the privilege of passing judgment on the implications of the laboratory reports. When the Kahn test shows a weak positive, for example, and is not significant in the opinion of the physician the latter may issue a certificate and attach the laboratory report. Literally the law obligates county clerks to issue a license if a medical certificate with the necessary laboratory reports is attached to the application. Responsibility for interpreting the laboratory reports is entirely in the hands of the examining physicians. A change in the method of rendering laboratory reports may settle this matter. Reports might be given as negative, doubtful and positive instead of negative or in graduated degrees of plus. This would be helpful but might not dispose of the "doubtful" satisfactorily.

Lack of definiteness concerning the laboratory procedure is probably the weakest feature of the law so far as accomplishing the purpose of the Statute is concerned. Relative uniformity of practice would require at least a standard

qualification of laboratories that would be eligible to do the tests. Here again it might be wise to repose in the State Department of Public Health the authority to set up standards.

The State Department of Public Health and all municipalities which maintain health departments are required by the present law to make the necessary laboratory tests "upon request of any physician within the State." Whether these facilities are utilized is entirely optional with physicians, perhaps a wise provision. At least one city, Springfield, has flatly refused to do the tests as required by the law and others have made no provisions to comply. This throws the burden of down-State laboratory work on the State Department of Public Health. In the event that the marriage rate in the State returns to normal and no change takes place in the attitude of municipalities, a considerable increase in the diagnostic facilities of the State laboratories will be required to handle the work. This implies greater appropriations.

No provision is made in the law for any exceptions to the requirement that applicants for a marriage license be free from veneral disease as nearly as can be determined by a thorough physical examination. It is conceivable that circumstances may arise which would make desirable the marriage of infected persons. An unmarried pregnant woman, for example, might be able to arrange a marriage with the father of her prospective child and one or both might be infected. A marriage with both parties under medical care might be a more satisfactory solution of such a problem than otherwise. More than 2,000 illegitimate births are reported annually in Illinois, suggesting that hypothetical case is not too far fetched. Indeed, cases of this kind have arisen for administrative decision since the law went into effect.

A kindred situation might arise between infected persons without the complication of pregnancy. Then the question arises as to whether marriage under medical supervision would be better than to run the risk of spreading the disease in question through illicit sex relations. Adequate machinery for keeping infected persons under medical treatment regardless of conjugal relations might be the best solution of situations like this, however.

Observations suggest that the requirement of the test for gonorrhea has caused more embarrassment to persons contemplating marriage and to physicians than has the requirement of a blood test for syphilis. It might be wise to make the laboratory test for gonorrhea optional with physicians and to make only the blood test for syphilis obligatory.

Modification of the law along the lines suggested in this paper seems imperative. Not only is the law subject to evasion, thus opening the way to defeat its purpose, but it has resulted in a decided decline in the marriage rate in Illinois. Sangamon County, for example, reported the issuance of 24 licenses in July, 50 in August and 51 in September of 1937 compared with 115, 141, and 121 in the corresponding months of 1936. Hundreds of couples have been married in adjoining States. While a temporary decline was anticipated it is probable that a substantial proportion of persons who have reasons to fear an examination will continue to leave the State for matrimony so long as the law in Illinois and in surrounding States makes this practice attractive. Some evasion of any law may be expected. The more practical the law, however, the fewer will be the evasions and the greater the success in accomplishing its purpose. It would seem difficult to enforce satisfactorily any law requiring premarital health examinations without centralizing administrative authority in some state department and investing that Department with discretionary authority concerning medical and other technical phases of the provisions.

J. R. Neal, M. D.
Chairman, Legislative Committee

THE DEATH TOLL FROM TUBERCULOSIS

The Chicago Tuberculosis Institute in connection with a statistical review of tuberculosis mortality says: that 3,500,000 have died from tuberculosis in 31 years; that in the three decades mentioned enough people have died from this dread disease to constitute a city the size of Chicago.

The report pointed out that more than 200,000 men, women and children will greet the new year next week who would have died of the malady during 1936 if this disease were killing today at the same rate as in 1905, when the Christmas Seal movement was launched in the crusade against the so-called white plague.

Despite the steady decline in the number of victims, it is estimated there are still more than half a million active cases in the nation today.

A large percentage of that number are men and women between the ages of 15 and 45. Tuberculosis is still the greatest cause of death in that age-group, claiming sixty out of every one hundred lives.

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A large percentage of that number are men and women between the ages of 15 and 45. Tuberculosis is still the greatest cause of death in that age-group, claiming sixty out of every one hundred lives.

Correspondence

IMPRESSIONS BY A PAST PRESIDENT OF THE STATE MEDICAL SOCIETY

To the Officers and Members of the Illinois Medical ociety:

Any man who is president of the medical society of a commonwealth as great as our own state of Illinois, is a man most highly honored by his *confreres.* It means that when the helm of their "ship of state," as it were, has been placed by them in the hands of that man, that to him has been given their greatest possession. He has been made their leader. This is tradition.

When this honor is granted to one doctor among the hundreds of efficient and scholarly men functioning in this state, in *trying times like these,* in times that are even *"bigger with fate"* than was the sailing of the Mayflower, it means that this man who has been made their president has been not only highly honored but highly trusted. To keep faith that his fellow practitioners have placed in him, must be one of the major motivations of that leader's days. Especially when he is a man living and working in one of the lesser metropolises of the state.

I know that every doctor in the state of Illinois feels that likewise the "all time high" of medical efficiency in our commonwealth is raised daily. In other words our progress never stops. In Illinois the medical profession aims ever for that perfection which includes not only scientific surety and personal prowess, a magnificent sense of ethics, an almost Brobdingnagian sense of philanthropy but also an alertness to the current economic situation as it effects medicine, both from a standpoint of passible sweeping lay control and overtaxation, to some imported condition of state medicine.

The Medical Economics Committee, the Educational Committee and above all, our ably edited official organ, the Illinois Medical Journal, have kept faith with medicine and with humanity in their persistent campaigns that are almost sacred crusades, in the upholding of all that is best in the creed and the tenets of Aesculapius. Our editor was one of the first men in the United States to read the sign-posts along the trail and to sense that medicine was being menaced both by bureaucratic theories and socialistic practices, neither of which would be entertained by the American people, if they were informed of the nature of the concoction prepared for them by false prophets and by traitors, both by accident or with malice aforethought.

The chairman of the Medical Economics committee has been indefatigable in his efforts. Through his research and his conclusions, and their distribution, many a man has become cognizant of how great importance to the actual preservation of life and to other medical practices is this very question of medical economics, which, alas, up until lately, too many of our brethren have regarded with indifference at best, and usually with actual *ennui.*

The amount of work accomplished by the Educational Committee is almost beyond estimate. The crying need for this section and truth to tell its cries are so vigorous as to sound almost culpine—is for money with which to work and an augmented personnel for the working. It would be of inestimable benefit to every ethical doctor in the state of Illinois, and an investment of incalculable return if we were each taxed an extra dollar a month. It would not hurt any physician to contribute this small sum to this educational fund for medical defense. If we are regimented and put on a salary basis, as will happen to us all, and that possibly without much delay, it will cost us more taxes and income than the sum mentioned, and we will all have less with which to make such payments. Better give a dollar a month now to build up a defense than to be caught napping through the subtle fallacies of false economy. The chairman of the Legislative Committee has kept such a competent eye for *double entendre,* or legislative "jokers" that medical legislation in Illinois is in much better shape than in the bulk of the states. I have been at times fearful, however, that the chairman of the Legislative Committee has been let to do too much of the work alone, and that the "locals" have not responded heartily enough to opportunities to share his labors.

All in all, the Councilors during my term as president functioned in a manner that can only be described as "100%." No president ever had a better staff—might I call them a "cabinet?" From each of the eleven districts it was a positive joy to work with such good men and true, augmented as they have been by the three councilors at large and co-relating officers.

Our efficient secretary revamped all the records of our competent societies and, this done, issued a set of cards which I am sure every doctor will agree expedited the registration of the state meeting of 1937. Further, secretaries of all these component factors of the state society were sent notification of the graded standing of their county society, and, also, lists of eligible members who should be both educated and entreated into losing no time at all in becoming a member of both their local and the state medical societies. After all, civilization is fighting the mighty *organization* of bolshevism plus socialism. *"Fight fire with fire."* We must for medicine's sake, and for *humanity's sake fight organized evil with organized good.* It is beginning to look as if the medical profession must save humanity as well as medicine itself. And just as the many "refresher" courses which the Councilors have arranged for their districts, speak for themselves, so, I am sure this "refresher" course in medical obligation as well as in medical savantry, which the Medical Economics Committee, the Educational Committee and the Legislative Committee, all aided by the able ILLINOIS MEDICAL JOURNAL will soon not only *speak* but *shout* for itself, once our state organization is 100% thoroughly set up. My work when president was one of the most pleasant episodes in my life. I visited many of the county meetings and I was always encouraged by feeling of unity everywhere. It was much like experience in wartime, when, inspired by a common need against a common enemy, all men for the time became brothers under the flag! Especially was this feeling sensed when at the Council meetings and at the session with Northwestern Conference where all officers were in attendance, despite great inconvenience to several of them—a devotion to society interests that was highly touching.

In conclusion I want to make it plain to each and every member of the Illinois State Medical Society that no honor has ever been more appreciated than the privilege of having served during the year 1936-7 as president of the Illinois State Medical Society. I know from what I have seen in this part year, that there is no more earnest, able body of scientists, citizens, or sterling men and women than the makeup membership of the Illinois State Medical Society. This organization will go on in the future, as it has done from its inception, towards higher duties and greater deeds. Let us hope, and that not without reason, that even after all of us here today have turned to dust that the seed that was planted nearly a century ago when the Illinois State Medical Society was founded, shall remain fertile, and shall still beautify the world of science and the world of human need.

ROLLAND L. GREEN, M. D.

FREE DRUGS FOR LUES

A good many physicians seem to be unaware that antisyphilitic drugs to meet *all* legitimate needs may be had entirely free from the State Department of Public Health. There are no strings whatever attached to the distribution of these drugs. The only requirement is that the physician show evidence of a need. This means merely that all cases must be reported and that each patient for whom drugs are requested must be identified by name, number or initials with each request for drugs. The financial ability of the patient makes no difference whatever. The drugs are free for the treatment of *all* patients.

Physicians within the city of Chicago may obtain the drugs only from the Chicago Board of Health. An ample supply of the drugs is turned over by the State to the Chicago Board of Health to meet all reasonable requirements.

All down-State physicians, including those in the suburban metropolitan areas of Cook County, should make application for drugs directly to the State Department of Public Health at Springfield. Prompt attention will be given to requests from any licensed physician who shows evidence of a need for the drugs.

Neoarsphenamine and bismuth only are available for general distribution.

Free distribution of these drugs has been undertaken by the State Department of Public Health in order to make adequate, efficient treatment available to every infected patient in Illinois. More than 18,000 new cases of the disease have been reported in the State to date this year, evidence of the magnitude and seriousness of the problem.

Frank J. Jirka, M. D.
Director of Public Health.

"THE HALL OF HEALTH"

At the meeting of the Council of the Illinois State Medical Society on October 25, 1937, it was voted that an educational exhibit open to

the public should be arranged in connection with the meeting of the Society in May, 1938, in Springfield, Illinois.

This exhibit, to be known as "The Hall of Health," and located in the Elk's Club Building will be open to the public from Monday, May 16, to Saturday, May 21, 1938.

The American Medical Association, the Illinois State Medical Society, various County Medical Societies, specialty societies, the Illinois State Departments of Health, Public Welfare, Education and Registration, the medical and dental schools and various organizations that are interested in the prevention, treatment or social aspects of various diseases will, it is hoped, participate.

Such exhibits depicting the advances that have been made and methods that are being continued or instituted in combatting disease should be of inestimable value. Moving pictures, charts and other demonstrations are more effective in telling these stories than are lectures or published articles.

The medical exhibits at the "Century of Progress" in Chicago had a greater attendance than did almost any other group of exhibits. The Hall of Health at the meeting of the Wisconsin State Medical Society in Milwaukee in September, 1937, was visited by over 100,000 people. While the Hall of Health at the Springfield meeting in May will not be as large or as comprehensive as that of the Century of Progress, it should be of a character that should attract at least as many visitors as did the Hall of Health of the Wisconsin State Medical Society.

Committee on Scientific Exhibits.
J. S. Templeton, Chairman
J. P. Simonds
E. H. Weld
C. F. Harmon
A. W. Meyer
N. S. Davis, III, Secretary

RESOLUTION ADOPTED BY THE COUNCIL OF THE ILLINOIS STATE MEDICAL SOCIETY CONDEMNING SENATOR LEWIS' PROPOSAL TO REGIMENT THE PROFESSION

A RESOLUTION

WHEREAS, Senate Joint Resolution 188 (Illinois Medical Journal Activities, Page 289), introduced on July 28, 1937, in the Senate of the United States by Senator J. Hamilton Lewis of Illinois, proposes to federalize the medical profession of the nation, making every licensed physician and surgeon a civil officer and subject to prosecution and penalization in Federal Courts for special causes enumerated in the Resolution; and

WHEREAS, Such action being clearly a case of class legislation is contrary to the principles of constitutional government; and

WHEREAS, The obligation imposed by the Joint Resolution upon each licensed physician of rendering needed medical service to any and all impoverished who make application to him would inevitably overwhelm practitioners of outstanding reputation, create the necessity of elaborate machinery to determine who would qualify as "impoverished" or in lieu thereof open the way for fraudulent practices, political interference and tend to lower the standards of medical practice; and

WHEREAS, The authority reposed by the Joint Resolution in the Social Security Board would lead almost certainly to fee fixing by governmental agencies and would necessitate a nation-wide accounting and investigating system that would add a tremendous indirect cost to the nation's bill for medical care; and

WHEREAS, The penalties imposed by the Joint Resolution on persons who violate the provisions thereof are so exorbitantly severe as to create a deterimental and inimical psychology in the medical profession; and

WHEREAS, The proposed plan would lend itself easily to political abuse and become a stepping stone to communistic and socialistic government; and

WHEREAS, Poverty itself is the fundamental cause of most of the ills which the Joint Resolution seeks to cure and prevent through the superficiality of a superimposed medical service; and

WHEREAS, The proposed plan would inevitably become a bitter cup of belated disappointment to thousands of poor and needy people who pin their faith of salvation from the tribulations of life upon this scheme, even as the Townsend mirage and the Huey Long "Share the Wealth" halucination became; and

WHEREAS, The enforcement of local laws already on the statute books would provide as adequately for the sick-poor as modern facilities and circumstances make practicable; and

WHEREAS, The needy now enjoy as adequate medical care as economic limitations and the vagaries of human nature would make possible under the proposed plan; therefore, be it

Resolved by the Council of the Illinois State Medical Society in regular session assembled. That Senate Joint Resolution 188 is inimical to the best public interests, is un-American and unworkable, would result in monumental expenses without yielding compensating benefits, would lead to political corruption and tyranny and ought to be defeated; and, be it further

Resolved, That copies of these resolutions be forwarded to the President of the United States, to each Senator and Representative in Congress from Illinois and to the Secretaries of the Medical Societies of the several States.

Note: Our State Society feels that it should take a prominent place in the opposition to Senator Lewis' proposal in view of the fact that he is the senior sena-

tor from the State of Illinois. We are asking every prominent medical organization in the United States to take specific action in the matter and pass resolutions similar to the one passed by the council of the Illinois State Medical Society. We believe that if said action generally adopted by medical societies and a copy of the resolution is sent to Senator Lewis and also a copy to each of the two Senators from the respective states and to the Congressmen it will have a telling effect when the matter is presented to Congress again.

REPORT OF EDUCATIONAL COMMITTEE TO COUNCIL:

September and October, 1937

SPEAKERS BUREAU:

56—Programs were arranged for lay groups. Speakers were scheduled for a number of meetings of County Federation of Women's Clubs. Other groups requesting speakers were Rotary Clubs, Parent Teacher Associations, Y. M. C. A.s, Kiwanis Clubs, etc.

A letter was sent to the secretaries of county medical societies suggesting that their members try to arrange to have speakers before all lay groups in their counties and offering the services of the Educational Committee in supplying suitable speakers.

MAILING LIST:

Public Libraries—

The material prepared in the office of the Committee for newspaper publication is sent weekly to

49—Chicago libraries

84—Downstate libraries

Public Health Chairmen—

31—Health Chairmen of Clubs and Parent Teacher Associations are on the mailing list and receive material on medical problems and current health subjects.

Home Advisers—Extension Department University of Illinois—

49—County Advisers receive the above material weekly.

Presidents and Secretaries of County Medical Societies are now being sent copies of all material released through the Educational Committee office.

A total of 1704 pieces of material were sent to the above groups.

SERVICE TO COUNTY MEDICAL SOCIETIES:

315—Notices sent for LaSalle County

190—Notices sent for Bureau County

233—Notices sent for Effingham County

102—Notices sent for Jefferson-Hamilton County

135—Notices sent for Perry County

131—Notices sent for Franklin County

Newspaper publicity about county medical societies:

7—Notices for Chicago Medical Society opening meeting

4—Notices for North Shore Branch

39—Notices for LaSalle County

68—Notices for Bureau County

21—Notices for Jefferson-Hamilton County

18—Notices for Monroe County

24—Notices for Wayne County

47—Notices for DeWitt County

Announcements of lay programs sponsored by Chicago Medical Society sent to all Chicago libraries and enclosed in all correspondence.

PRESS SERVICE:

40—Health columns sent to newspapers for monthly article.

724—Health columns to downstate papers who use material weekly or daily.

680—Health columns in editorial style to downstate papers.

146—Health columns to Chicago newspapers.

Articles written and approved on the following subjects:

The Doctor Looks at the Blood Count
Immunity and Immunizations
Infantile Paralysis Increases Sharply
Health of the Middle Aged Woman
Appendicitis a Treacherous Condition
Just a Cold or Pneumonia?
Popular Fallacies
Running Ears
Beware of Colds
Pupils' Health
Vitamin Values
How Is Your Mental Health?

SCIENTIFIC SERVICE:

43—Speakers were secured for county medical societies.

A number of Heart Clinics were arranged.

See special report attached about the Special Programs in Obstetrics and Pediatrics.

Counties assisted with scientific programs were:

Union
Iroquois
Greene
Effingham
Bureau
St. Joseph's Hospital, Aurora
Will-Grundy
Knox County
Stephenson County
Schuyler
Coles-Cumberland
Lee
Whiteside
Wayne
Williamson
Jefferson-Hamilton
Fulton
DeWitt
LaSalle
Monroe
Montgomery
Morgan

RADIO:

33—Radio programs were given over stations WBBM, WGN, WJJD, WAAF

Most of the programs are dialogues and are proving very satisfactory.

MISCELLANEOUS:

800—Radio announcements were mimeographed and sent to presidents of Parent Teacher Associations, Women's Clubs, libraries, etc.

350—Announcements of health projects of the Illinois Federation of Women's Clubs were prepared for the public Health Chairman of the Federation.

Cooperation of the Educational Committee with the State Department of Public Health in the special programs in obstetrics and pediatrics.

Dr. Harold H. Hill contacted secretaries of county medical societies following an introductory letter sent out by the Educational Committee.

He arranged with secretaries to hold special meetings in 8 sections of the state.

The securing of the speakers was done through the office of the Educational Committee.

A statistical report will show the amount of special work which the Committee has assumed in an effort to make these programs highly successful—

200—Letters were written to obstetricians to ascertain if they cared to participate in this work and if so the subjects they would be prepared to present.

101—Follow up postal cards.

Coles—Cumberland—Clark—Douglas are holding monthly meetings—Oct. 7, Nov. 4, Dec. 2, Jan. 6, with 8 speakers.

These programs to date have required:

16—Letters

62—News releases

228—Postal card invitations to doctors

LaSalle County—are holding weekly meetings—Oct. 21, 28, Nov. 4, 9, 18, with 9 speakers.

These programs to date have required:

24—Letters

46—News Releases

388—Mimeographed postal card invitations

Lee—Whiteside Counties—holding bi-weekly meetings, Oct. 7, 21, Nov. 4, 18 and Dec. 2, with 12 speakers.

These programs to date have required:

28—Letters

29—News releases

135—Double postal card invitations to doctors.

Hancock County—holding monthly meetings Nov. 1, Dec. 6, Jan. 10 and Feb. 7, with 8 speakers.

These programs to date have required:

13—Letters

30—News releases

172—Double postal card invitations

Lawrence—Crawford—Jasper Counties are holding weekly meetings Nov. 16, Dec. 21, Jan. 18 and Feb. 15, with 8 speakers.

These programs to date have required:

12—Letters

News releases and invitations are going out in November so are not included.

Morgan County—is holding two meetings Oct. 28 and Nov. 18, with 12 speakers.

These programs to date have required.

30—Letters

150—Mimeographed copies of the program

Union—Perry—Jackson Counties are holding monthly meetings on Nov. 18, Dec. 2, Jan. 13, Feb. 3, March 17 and April 14, with 10 speakers.

These programs to date have required:

12—Letters

Jefferson—Hamilton—Wayne—Franklin and Saline Counties are holding meetings on Nov. 5, Dec. 9, Dec. 23, Jan. 27, Feb. 18 and March 18, with 9 speakers.

These programs to date have required:

15—Letters

Invitations and newspaper releases go out first of November, so are not included.

The amount of work in connection with these programs has been tremendous and a decided additional burden on the office of the Committee. The work has been done because it was felt that these programs were excellent and every effort should be made to let the doctors know about them. The wishes of the local societies have been followed in all matters and the secretaries have written most gratifying letters of appreciation for the help given them in promoting these meetings. Respectfully submitted,

JEAN MCARTHUR.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

Slogan for 1937-1938

TO BECOME MORE AUXILIARY MINDED

The program compiled by the State Program Committee is a completely informative message to the County Auxiliaries. It is complete and interesting as well as instructive. It is the hope of all that the Auxiliary members in the group organized first may profit from this program, as well as the newest members.

The following is from the State Program:

How Does a Member Support Her Auxiliary?

1. Paying dues
2. Attending meetings
3. Accepting offices and chairmanships in other organizations, especially those related to health, in order that—
   a. Informed speakers may address them
   b. Approved material may be given them
   c. Programs and projects to be undertaken shall be scientifically sound
   d. She may keep informed about medical matters and activities in other organizations
   e. Report to her President and Society *Programs* and *Projects* which are unwise and unacceptable; report to be made through advisers
4. Promoting good fellowship by affability at meetings; by attendance at entertainments and conventions; by assisting as requested
5. By fulfilling the charges as given through the advisors

County News

St. Clair County members had an enjoyable meeting October 7, at St. Mary's Hospital Auditorium in East

St. Louis. The relation of religion to medicine was the theme of the talk by Rev. B. J. Koehler. The book, "The Art of Ministering to the Sick," written by a minister and a doctor, was referred to by the speaker.

Mrs. R. F. Stanton, presided at the meeting.

The next meeting will be a tea, November 11, at the home of Mrs. Wendell Stuart.

Cook County Woman's Auxiliary to the Chicago Medical Society had the regular October meeting at the Chicago Woman's Club. The following were guests: Dr. Rollo Packard, President of the State Medical Society; Dr. G. W. Post, Jr., President of Chicago Medical Society; Dr. Frank Maple, Secretary of the Chicago Medical Society, and the Presidents of all the branches were present with few exceptions. Dr. Frank Maple spoke to the group on *Socialized Medicine*. It was most interestingly presented.

The daughter of a member, Lois Russell Holsman, gave several enjoyable vocal selections.

Mrs. Harry Dooley presided. Mrs. Chas. Seegal is Program Chairman.

Aux Plaines Branch members had a Laity Day, October 22.

Dr. J. C. McMillan spoke briefly upon the current bills to come before the National Body of Lawmakers.

Dr. Louis Smith spoke on "What the Medical Society Is Doing to Combat Syphilis."

May I request, at this time, that all information and press clippings concerning your Auxiliary be sent to the Publicity Chairman at an early date? This may be done by the local publicity worker or any designated member. Everyone is interested in learning the activities of others, but it is not possible unless sent to the proper source.

Louise W. Smith (Mrs. C. Otis),
Ch. Press and Publicity.
1012 Pleasant Street, Oak Park, Ill.

THE PASSING OF HENRY K. MULFORD

America lost one of its foremost exponents of preventive medicine in the passing of Henry Kendall Mulford, in his 71st year, on October 15, 1937.

The company which bore Mr. Mulford's name was the first in this country to commercially distribute antitoxins. Smallpox vaccine and curative serums used in the prevention and cure of infections and contagious diseases were soon added. Through the distribution of these biologicals, he was probably responsible for the saving of more lives than any other man in the history of medicine and pharmacy. These alone stand as a fitting monument to his life of service to humanity, and, thanks to his stimulating influence on the younger men whom he drew around him, the good work that he accomplished and new work started will continue to grow on and on.

The story of the life of Mr. Mulford, as unfolded by men who have known him since his embarkation into the field of pharmacy, is of interest. Born in Bridgeton, New Jersey, October 10, 1866, of old New England stock, H. K. (Henry Kendall) Mulford came from a family of sea captains, and his forebears played an important part in local history. He attended the Bridgeton elementary school, later the South Jersey Institute, a military prep school having a curriculum comparable with present college work.

The degree of Master of Science was conferred upon Mr. Mulford by Lafayette College in 1918, and the highest honor in pharmacy, Master of Pharmacy, was conferred upon him by his Alma Mater, the Philadelphia College of Pharmacy and Science, in 1933. He was a member of the American Pharmaceutical Association, American Drug Manufacturers Association, American Pharmaceutical Manufacturers Association, American Chemical Society, the Franklin Institute and the Union League.

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces open competitive examinations for the following positions:

Junior Medical Officer (Rotating Interneship), $2,000 a year.

Junior Medical Officer (Psychiatric Resident), $2,000 a year.

The place of employment is to be St. Elizabeths Hospital, Washington, D. C. Applications for these positions must be on file with the U. S. Civil Service Commission, Washington, D. C., not later than November 29, 1937, if received from States east of Colorado, and December 2, 1937, if received from Colorado and States westward.

For the position of Junior Medical Officer (Rotating Interneship) applicants must be fourth-year students in a grade A medical school. For the position of Junior Medical Officer (Psychiatric Resident) applicants must have successfully completed 4 years of study in a grade A medical school not prior to January 1, 1935, and must have the degree of either B. M. or M. D. In addition they must have successfully completed an interneship of at least 1 year, provided that applications will be accepted from persons now serving an accredited rotating interneship.

Full information regarding these examinations may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city which has a post office of the first or second class, or from the United States Civil Service Commission, Washington, D. C.

DR. COLWELL'S DAILY LOG FOR PHYSICIANS

This is one of the most practical and simple systems of bookkeeping yet offered physicians. It offers a bird's eye view of a medical man's daily financial condition. The "Daily Log for Physicians" is issued by the Colwell Publishing Company, Champaign, Illinois. Price $6.00.

This is the eleventh edition of the Daily Log. For over a decade this volume has been a first aid to every busy doctor. Since the beginning of the publication of the "Daily Log" it has been subjected to yearly revision and annotations though the general principal remains the same.

Medical schools provide little or no training in book-

keeping. Many physicians unacquainted with the "Daily Log for Physicians" and using crude methods of their own invention will welcome the 1938 edition. The work displays important income and expense items. Figures that are essential not only for income tax returns, but for budgets, legal aid, watching progress.

Subsidiary to the financial records are several memorandum forms; records of inoculations, surgery, obstetrics; government-required records of nacotics dispensed and social secuity tax figures.

The author of the Log is a physician with an excellent background of a city and country practice. It is edited by the Doctor annually and brought up-to-date in the light of new needs suggested by users.

A GRADUATE COURSE IN VENEREAL DISEASE CONTROL

Graduate courses for training in the various phases of veneral diseases control have been instituted by Western Reserve University, Cleveland, Ohio, under authority of the United States Public Health Service and the Ohio State Director of Health. They will be open without fees to health officers and to physicians cooperating with state and local health departments in the states of Ohio, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, Kansas, Nebraska, North Dakota and South Dakota, but the number who can be admitted is limited. The course may be entered at any time when a vacancy exists, usually for a duration of three or four months or longer. Visitors may also be admitted for shorter periods, if they can be accommodated.

The training will be informal and adapted to the individual needs of those taking the course. For example, to a clinician in a venereal disease clinic much clinical material is available and that portion of the training will be stressed. For the educator in a state health department, in addition to the clinical course, source material for talks to both lay and professional groups will be available and the student will be expected to prepare varied lectures. For the health department officials in addition to these features, case finding, case holding and morbidity reporting will be discussed more fully.

Physicians who desire to take these courses should apply through their State Health Department to the Ohio State Director of Health. Application blanks, if not already at hand, can be obtained by addressing Dr. C. C. Applewhite, Regional Consultant for the United States Public Health Service, Room 314, U. S. Court House, Chicago, Illinois.

IOWA AND ILLINOIS CENTRAL DISTRICT MEDICAL ASSOCIATION MEETING

The fall meeting of the Iowa and Illinois Central District Medical Association was held September 29, 1937 at the Blackhawk Hotel in Davenport, Iowa.

At 3 p. m. Frederick A. Willius, M. D., cardiologist of the Mayo Clinic of Rochester, Minn., delivered an address, "Coronary Disease," which was discussed by Fred M. Smith, M. D., professor of Medicine at the University of Iowa, Iowa City, Iowa, and J. A. Laymn, M. D., of Moline, Illinois.

At 4 p. m., Alphonse M. Schwitalla, Dean of the St. Louis University School of Medicine and president of the Catholic Hospital Association of the United States and Canada delivered an address, "Social Aspects of Medical Practice."

At 5 p. m., George de Tarnowsky, M. D., professor of Surgery at the University of Illinois School of Medicine, Chicago, Illinois, delivered an address on "Low Back Pain," which was discussed by H. P. Miller, M. D., Rock Island, Illinois, and W. G. Bessmer, M. D., Davenport, Ia.

Dinner was served at 6.30 p. m.

At 8:15 p. m. Morris Fishbein, M. D., editor of the Journal of the American Medical Association, Chicago, delivered an address on "The Doctor and Social Security."

The addresses of Father Schwitalla and Dr. Fishbein were broadcast over radio station WHBF, Rock Island, Illinois.

NINTH GORGAS MEMORIAL ESSAY CONTEST ANNOUNCED

Announcement of the Ninth Gorgas Memorial Essay Contest has been made by Admiral Cary T. Grayson, Chairman of the Board of Directors of the Gorgas Memorial Institute, from the office of the institute at 1835 Eye Street, Northwest, Washington, D. C. The essay contests have become an annual feature of the program of personal health education carried on by the institute. High schools throughout the country are invited to enroll. Participation is restricted to students in the third and fourth years of high school.

For the best essay written in each school, a bronze Gorgas medal is awarded and the student so honored represents his school in the State competition. A prize of $10 in cash is given for the best essay in each State. The judges are state officials—the state health office, state superintendent of education and the secretary of state. The state-prize-winning essays are then judged for the national awards. First Prize is $500 in cash and a travel allowance of $200 for a trip to Washington to receive the prize. Second Prize is $150 in cash and Third Prize $50.

The subject for this year: The Achievements of William Crawford Gorgas and Their Relation to Our Health.

The dates of the contest: October 21, 1937, to January 21, 1938.

Full information concerning the contest may be found on school bulletin boards or can be obtained from the Gorgas Memorial Institute, Washington, D. C.

MISSISSIPPI VALLEY MEDICAL SOCIETY AWARD

The Mississippi Valley Medical Society offers a cash prize of $100.00, a gold medal and a certificate of award for the best unpublished essay on a subject of interest and practical value to the general practitioner of medicine. Entrants must be ethical licensed physicians, residents of the United States and graduates of approved medical schools. The winner will be invited to present

his contribution before the next annual meeting of the Mississippi Valley Medical Society (September 28, 29, 30, 1938), the Society reserving the exclusive right to first publish the essay in its official publication—the Radiologic Review and Mississippi Valley Medical Journal. All contributions shall not exceed 5000 words, be typewritten in English in manuscript form, submitted in five copies, and must be received not later than May 15, 1938. Further details may be secured from Harold Swanberg, M. D., Secretary, Mississippi Valley Medical Society, 209-224 W. C. U. Building, Quincy, Ill.

REMOVING ADHESIVE PLASTER

For the painless and most satisfactory removal of adhesive plaster, it should be thorougly moistened with "KARITH CLEANING FLUID." Karith Cleaning Fluid is quick and effective. It does not contain carbon tetrachloride. Its use is not accompanied by the odor or unpleasantness and danger common to carbon tetrachloride type products.

Karith Cleaning Fluid is manufactured by Karith Chemical Company of Chicago, Illinois, and is carried by drug stores.—J. W. W., Ill. Med. Jour., Nov., 1936.

GOLFERS SPECIAL TO A. M. A. MEETING

A. "Golfers Special" to the San Francisco meeting of the A. M. A. is being organized by the American Medical Golfing Association. Physicians who like golf mixed with their travel will find five games arranged on the trip out to the coast for the A. M. A. meeting of June 13, 14, 15, 16 and 17, 1938, and three games on the return trip through the Northwest. The first game will be played in New Orleans, reached by the Steamship S. S. Dixie, from New York (or via a rail itinerary) on Tuesday, June 7, 1938. Other stops include Houston, Galveston and San Antonio, Texas; Los Angeles and Del Monte, California; and finally San Francisco, where the big A. M. G. A. tourney will be held on Monday, June 13, 1938.

The return trip includes Portland, Oregon; Seattle, Washington; Vancouver, B. C.; and Lake Louise and Banff, and finally St. Paul and Chicago.

Non-golfers as well as golfers, and their ladies, are WELCOME and will find the A. M. G. A. Special a glorious experience.

For full particulars write Dr. Walt P. Conaway, 1723 Pacific Avenue, Atlantic City, N. J., the President of the A. M. G. A.; or Bill Burns, Executive Secretary, 2020 Olds Tower, Lansing, Michigan.

MINERAL WATERS IN JAMAICA COMPARE WITH SPAS OF WORLD RENOWN

Comparing favorably with spas of world-wide renown, the Thermal Mineral Bath at Milk River, Jamaica, B. W. I., 52 miles from the capital Kingston, has been found by many people to be very beneficial. It is claimed that the radio-active properties of this spring has stood the test of over a century. In fact the mineral water of the Milk River Baths has been proclaimed as one of the most remarkable of its kind in the world. The water, which is extremely saline, issues from crevices in the rock direct into the baths. The temperature of the water maintains a uniform 92 degrees Fahrenheit throughout the year. Besides being rich in mineral salts, it possesses a high radio-activity which is said to render it of great therapeutic value. This water is specially recommended for gout, rheumatism, sciatica, lumbago, neuralgia, eczema, and kidney and liver troubles.

EXAMINATIONS—AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next examinations (written and review of case histories) for Group B candidates will be held in various cities of the United States and Canada on Saturday, November 6, 1937, and Saturday, February 5, 1938. Application for admission to these examinations must be filed on an official application form in the office of the Secretary at least sixty days prior to these dates.

The general oral, clinical and pathological examinations for all candidates (Groups A and B) will be conducted by the entire Board, meeting in San Francisco, California, on June 13 and 14, 1938, immediately prior to the meeting of the American Medical Association.

Application for admission to Group A examinations must be on file in the Secretary's Office before April 1, 1938.

For further information and application blanks address Dr. Paul Titus, Secretary, 1015 Highland Building, Pittsburgh (6), Pa.

UNDEREATING VS. OVEREATING

The Illinois State Medical Society 37th week release directed to health officers contains the following valuable information:

Recent studies here and abroad yield convincing evidence that undereating ranks ahead of overeating in the cause of ill health among the masses. A study by Jeghers in Boston and one by McGonigle in Stockton-on-Tees (England) indicate that a large proportion of people either from necessity or choice spend too little for food and consequently suffer demonstrable and not infrequently serious impairment of health.

McGonigle observed a group of 152 families (710 persons) that were moved from slums into government-built houses. Their rental expense was greater with no increase of income, reducing funds available for food. During the first 5 years in the new houses the death rate was 46% higher than during the previous 5 years and was up by about an equal proportion above that of a similar group left in the slums during the 5 years and above that of the general community and the nation. Careful study of all factors showed that a reduction in quality of diet was responsible for the unfavorable experience.

Jeghers examined 162 students of Boston University School of Medicine primarily for vitamin A deficiency. He found evidence of deficiency, indicated by "night blindness" or delayed adjustment of vision to darkness, in 55 of the students. Focal infections and other ills were much more frequent in the 55 than in the others, or normal group, and the duration of colds was considerably longer in them. No person in the normal

group ate less than two adequate meals daily whereas 60% of the "deficiency" group ate only one adequate meal per day. Coffee and doughnuts or rolls for breakfast and a sandwich or two for lunch, the usual meals for this 60%, was not considered a complete or adequate meal. "The folly of the prolonged substitution of a sandwich, roll or doughnuts for one or more complete meals is evident," declared Dr. Jeghers.

Undereating among the masses is a matter of quality and variety of foods rather than too little quantity. Most people get enough food to prevent hunger but many are underfed with respect to the nutritional requirements of the body. Proper choice of foods and an adequate supply are especially important to health during the fall and winter because of limited sunshine, indoor life and relative scarcity of fresh fruits and vegetables.

OWNERSHIP OF ROENTGENOGRAMS

The question whether the roentgenograms of a hospital patient belong to the patient or to the hospital was answered by a court for the first time, so far as is known, in Hurley Hospital v. Gage, decided on appeal, April 21, by the circuit court for the county of Genesee, Mich. The patient had been roentgenographed in the roentgenographic department of the Hurley Hospital at Flint. The usual charge for the service was included in the patient's bill. He made a payment on account but refused to pay the charge for roentgenographic service unless the roentgenograms were delivered to him. The hospital refused to deliver them and sued the patient for the balance due. In the justice's court where the suit was instituted, judgment was given against the hospital. The hospital, however, because of the principle involved, appealed to the circuit court of Genesee County. At the hearing on the appeal, no one appeared on behalf of the patient and the case was heard and judgment rendered without the submission of evidence or argument by him. In giving judgment, the court pointed out that the hospital sold and patients paid for, not the material that went into roentgenograms, but knowledge and experience. The protection of the hospital might depend largely on the proper preservation of the roentgenograms and, said the court, the films should remain with the hospital. Judgment was given against the patient for the balance due on his bill, covering the amount charged by the hospital for the roentgenograms.

BLOOD PICTURES IN PRIMARY DISEASES OF LYMPHATIC SYSTEM: THEIR CHARACTER AND SIGNIFICANCE

B. K. Wiseman, Columbus, Ohio (Journal A. M. A., Dec. 19, 1936), discusses only those primary lymph node diseases and the blood changes produced by them which are susceptible to treatment with radiation. These consist of lymphosarcoma, lymphatic leukemia and Hodgkin's disease. It is probable that, excepting the benign hyperplasias, all primary diseases of the lymphoid tissues difficult to classify belong in one of these three classes. All grades of lymphatic leukemia may be encountered, ranging from the pathologic state without leukemia, through benign states resembling chronic lymphocytosis, to those which are rapidly progressive and rapidly fatal. Many of these types show very little resemblance, cytologically, clinically or histologically, to neoplasia. Lymphosarcoma may be characterized hematologically either by a leukemic or by a nonleukemic blood picture. The former constitutes a type of leukemia (leukosarcoma) which possesses special features of neoplasia and is rapidly progressive and very radiosensitive. Hodgkin's disease, usually but not always, possesses a characteristic blood picture. These characteristics are interpreted as suggesting an alteration of the reticulum cell-monocyte maturation cycle arising from an infectious agent. Careful blood studies in the control of radiation therapy in this group of diseases are necessary if optimum therapeutic results are to be obtained.

COMPOUND SOLUTION OF TANNIC ACID

Bernard Fantus and H. A. Dyniewicz, Chicago (*Journal A. M. A.*, July 17, 1937), show by experiment that the more concentrated solutions of tannic acid produce a denser and therefore probably more efficient crust. They conclude that 10 per cent of tannic acid is likely to be the most desirable strength of the solution. In view of the fact that the solution is intended to be applied to a raw surface, it seems logical that isotonicity might be desirablee or, better, that the ions naturally existing in the tissue juices be present in the solution ("iso-ionia"). This suggests the use of physiologic solution of sodium chloride or, still better, of Ringer's solution as the solvent. Through experiment they find that Ringer's solution is the best solvent for the tannic acid. The density of the precipitate is influenced by the hydrogen ion concentration of the solution. The densest complete precipitation occurs in the zone between *p*H 2.82 and 3.22. In the tubes of *p*H below 2.83 and above 6.42, not all of the tannic acid is precipitated, there being a turbid supernatant liquid; and, in the most acid and most alkaline tubes, there is a turbidity but no precipitation whatever. It is concluded that, if density of precipitate is the criterion, the 10 per cent solution of tannic acid at its own *p*H of 3.22 will probably answer the purpose best. Benzoic acid as well as salicylic acid is successful as a preservative for the tannic acid solution. On the basis of their experiments the authors recommend the following formula for compound solution of tannic acid: 0.42 Gm. of potassium chloride, 0.84 Gm. of calcium chloride, 1 Gm. of salicylic acid, 10.5 Gm. of sodium chloride, 100 Gm. of tannic acid and enough distilled water to make 1,000 cc. This is mixed, permitted to stand with occasional agitation until dissolved, then filtered if a clear solution is desired. The authors also recommend that 10 per cent silver nitrate solution be applied to the tannic acid crust. The recommended tannic acid solution is endowed with good preserving qualities, produces a denser coagulum and has bacteriostatic action, which is absent in the plain tannic acid solution. This solution is being used successfully for crust formation in the treatment of burns at the Cook County Hospital.

Original Articles

PENUMONIA IN CHILDHOOD ETIOLOGY AND CLASSIFICATION

JOSEPH BRENNEMANN, M.D.
CHICAGO

Taken as a whole, pneumonia in childhood is a serious disease with a high mortality. H. O. Jones[1] reported in 1926 that the mortality from pneumonia in children under five years of age in Chicago had exceeded that due to diarrheal disorders in 1918 and had maintained that lead since that time. This does not, however, tell the whole story. The mortality varies widely with age and clinical setting. It is high in the first year or two, notably among those less favorably situated economically, it approaches the vanishing point in later childhood, no matter what the economic and social status may be. It is obvious to the experienced practitioner that pneumonia is not a uniform disease in childhood, that it has a varied etiology and that it manifests itself in widely different forms and degrees of severity.

Pneumonia of the adult is usually frankly lobar in type. The same is true of uncomplicated pneumococcus pneumonia at any age, even in infancy. One still encounters too often the idea that pneumonia in the first year or two of life must be bronchopneumonia simply because it occurs at that early age and this carries with it the erroneous assumption that all pneumonias at that age have a high mortality. Pneumonia rarely occurs in the first few months of life; beyond that period uncomplicated pneumococcus lobar pneumonia is a relatively mild disease as far as mortality is concerned. The important point to bear in mind is not that pure lobar pneumonia may not occur at that age, but that bronchopneumonia is much more common in infancy and early childhood than it is in later life and that it is this fact that makes pneumonia, as a whole, statistically considered, so much more severe and so much more fatal at that early period.

Several factors enter into the etiology of bronchopneumonia at this age. It is practically always secondary to an infection to which the child is not yet wholly, or adequately immune, such as the common cold, measles and whooping cough, and especially those ill-defined more serious infections that pass under the name of grip or influenza. It will be remembered that an analogous condition was evident during the World War in the high incidence and mortality of pneumonia among those who were not immune to measles. A second factor lies in the fact that young children, and especially infants, of the underprivileged class are less resistant to such primary infections and react to them more seriously. The effect of this when combined with herding in infant wards and orphan asylums will be stressed later. A third factor, perhaps the outstanding one, is mixed infection, or super-infection in which the hemolytic streptococcus, a staphylococcus, and, if we may accept more recent observations, the influenza organism of Pfeiffer play the leading roles. It is probably this, and not the primary pneumococcus infection, that determines the high mortality of bronchopneumonia as we shall see later. This association may occur also in lobar pneumonia but less frequently and less decisively. Finally, some 32 types of pneumococcus have been identified in children, and their etiologic and clinical significance has not been worked out to the same extent that it has been possible to do in the rather simpler situation in the adult.

In all primary pneumonias a pneumococcus plays the leading role both as to incidence and initiation of the disease. Infection may result from contact with a child who has pneumonia, or from a carrier, i.e., it may be exogenous in origin. Again, it may be endogenous, i.e., a latent germ may assume virulence, or there may be a favoring change in the host brought about by such factors as exposure, chilling, or neglect of a cold or grippy infection. Carriers may play a greater part than we know in both methods of infection. In some series of tests in healthy children in institutions from 50% to 100% have at times harbored the organisms.

Attempts are being made to classify the pneumonias of childhood for practical purposes according to bacterial etiology and type as has been done more successfully in the adult. This has been done especially by Trask,[2] at Yale, to whom I am much indebted for whatever scientific flavor has been added to my own practical experience in this presentation. The complexity of the problem has made such attempts for the present rather more of didactic interest than

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of practical significance. Nevertheless, it is becoming increasingly evident that classification of childhood pneumonias must be based as far as possible on specific etiology, as well as on clinical experience. For the present we must accept the conventional clinical classification that divides them into two types, lobar pneumonia that may, or may not, appear as an uncomplicated pneumococcus infection; and bronchopneumonia that has a more varied etiology and a wider clinical ramification and is usually a mixed infection in which the pneumococcus may play the dominant, or at least the initial, role or may not enter into the picture at all so far as can be determined.

The differentiation between lobar and bronchopneumonia is by no means always easy or even possible at the bed-side. Both may occur at the same time. Sometimes the pathologist alone can tell whether there has been a lobar pneumonia, a bronchopneumonia of lobar distribution, or both. The significant points in the clinical differentiation are the abrupt onset and termination, the frank consolidation of one or more lobes and the absence of râles in other portions of the lungs in lobar pneumonia; the insidious onset, prolonged course and more gradual, variable termination, the presence of fine and coarse râles throughout the lungs and the late and patchy appearance of consolidation in bronchopneumonia. Again, it is difficult or impossible to differentiate between a severe bronchitis alone and a bronchopneumonia which is always associated with an extensive bronchitis, except by the degree of fever and prostration and the course of the disease. Bronchiolitis, or capillary bronchitis, to which attention will be drawn later, is even more difficult to differentiate, because it is usually a part of the bronchopneumonia itself. Migrating or wandering pneumonia, a type of lobar pneumonia in which two or more lobes are successively invaded, a relatively benign infection, is often mistakenly interpreted as a more serious bronchopneumonia, for no other reason than that it has spread and that it occurs in a young child.

Both types of pneumonia are nearly always definitely preceded by an upper respiratory tract infection. It is obvious that infection enters the body more frequently by the respiratory route than by any other and that the primary invasion is in the nose or throat. From this it may invade the blood stream or extend downward along the tracheobronchial tree. While blood cultures yield positive results in a fair proportion of cases the prevailing evidence points to a bronchogenic route of invasion in both types, though there may be little involvement of the bronchi and bronchioles. In lobar pneumonia we expect the stereotyped story of a cold, a cough, a sore throat with little fever for a few days preceding the rather sudden onset of higher fever and a more serious illness that ushers in the pneumonia. In bronchopneumonia, in addition to the factor of age, there is usually the evidence of a more serious grippy, "influenzal," or streptococal respiratory infection or measles, whooping cough, or more rarely scarlet fever.

It is commonly impossible to tell whether a streptococcus, a staphylococcus or the bacillus of influenza of Pfeiffer is a sole primary or a secondary invader. If there is a streptococcus or a staphylococcus septicemia it is, of course, logical to assume that a complicating pneumonia is due to the same organism. Increasing attention has recently been directed, notably again by Trask[2] and others, to the importance of the bacillus of influenza as a complicating factor in childhood pneumonia. It is perhaps well to state that the bacillus of influenza, so-called by Pfeiffer, is not here assumed to have an etiologic relationship to what is commonly known as influenza. Trask has reported an association of this organism with a pneumococcus, usually with Type III, in nearly all necropsies on children dying of pneumonia and has attributed the severity and high mortality to that association. He has reported that the infection due to the Peiffer bacillus travels along the bronchi and bronchioles and causes a characteristic necrotic destruction of the mucous membranes. The necrosis and desquamation lead to blocking of these air passages with resulting fatal atelectasis and emphysema in those that come to autopsy.

This condition is said to be identical with bronchiolitis, or capillary bronchitis, which may occur alone as a definite clinical entity, or as a superinfection in either lobar or bronchopneumonia, especially the latter. It is evident that a bronchiolitis, or capillary bronchitis, which is characterized by dyspnea, cyanosis, generalized fine râles, emphysema and late or absent evidence of consolidation is hard, or impossible, to differentiate from bronchopneumonia. It is also evident that these terms need sharper definition in common usage if we are all to talk the same lan-

guage. It is interesting that Henoch, many years ago, said that capillary bronchitis in a child under four years of age meant bronchopneumonia.

There is a condition that is occasionally found in young children, most often in infants, that is hard to differentiate from what has just been described as bronchiolitis, or capillary bronchitis, except by the generally favorable course. These children have as fine râles as one ever encounters, present in great profusion throughout both lungs. They are not profoundly sick, quite regularly recover in a comparatively short time, and yet from the very nature of the râles the seat of the inflammation can only be assumed to be in the finer bronchioles.

Streptococcus pneumonia is a severe type of bronchopneumonia in which hemorrhages occur not infrequently especially adjacent to the pleurae. It is frequently accompanied by empyema. The specific etiology can be suspected if there is a streptococcus infection in the throat and can be assumed to be established if the pneumonia is secondary to scarlet fever, or to a streptococcemia, or if the organism appears in pure culture in empyemal fluid.

The role of the staphylococcus is distinctive and of special interest. It is not a common, but a very serious cause of pneumonia in infancy where it occurs most frequently. Under six months of age staphylococcus pneumonia is nearly always accompanied by multiple abscesses of the lung and by empyema, often by suppuration of the hilar lymph nodes. All of this, together with the fact that the lung involvement is usually merely a part of a staphylococcemia, in itself one of the most fatal septicemias, readily accounts for the high mortality from staphylococcus pneumonia. The diagnosis may be assumed from the age period and the severity and long duration of the disease, and is established by a positive culture from the pus obtained by thoracentesis. While one usually expects a fatal termination in staphylococcus pneumonia and empyema in infants in the first semester of life, the prognosis is by no means hopeless. We have recently had two infants three months and five months of age respectively, at the beginning of the illness, who ultimately made a complete recovery following thoractomy and after many weeks in an oxygen tent.

The term "interstitial pneumonia" is often used to designate the type that occurs in virus diseases, such as measles, in which there is a peribronchial infiltration that is sometimes demonstrable in x-ray films as small, circular areas of greater density than that of the surrounding tissue.

A serious but rare type of bronchopenumonia is that due to Friedlander's bacillus, in which focal areas of necrosis occur. Still other rare types are caused by the germs of psittacosis, or parrot fever, plague, glanders and hog cholera. In hog cholera which is primarily a virus disease, the bacillus suipestifer is a secondary invader and it is this organism that has been incriminated in a number of pathologic conditions in man and among them bronchopneumonia. Discussion of the embolic bronchopneumonias that occur with septicemia or pyemia is beyond our present scope.

A final type of "pneumonia" has only recently been recognized. In 1925 Laughlen[3] described a lung condition which passes under the name of lipoid, or lipid, pneumonia that is due to the inhalation of oils or fats. The disease is probably more common than is realized and may ultimately explain pathologic changes in the lungs of hitherto unsuspected etiology. In uncomplicated form lipoid pneumonia represents an irritation with fibrosis, not an infection. Unless infection supervenes it is afebrile. It runs a chronic course often of many months' duration. Since it is due to the inhalation of a foreign substance it follows the rule of invading the right lung more often than the left. While nearly any oil may produce some irritation, some are much more irritating than others. Again, it is obvious that some oils are much more likely to be inhaled than others. For this reason milk fat, cod liver oil and mineral oil are the chief and most frequent offenders. The conditions under which inhalation of oil take place can readily be visualized: the young, weak or marantic baby that vomits while lying on its back unable to turn even its head; the infant or young child who sputters and coughs and chokes while his nose is held as cod liver oil or mineral oil is forced down his throat; the child too sick to cough, or to resist, while oily nose drops are being administered. The degree of invasion depends, on the one hand, on the amount of oil inhaled usually not so much at one time as in repeated smaller amounts over a longer period of time; and, on the other hand, on the nature of the oil itself. Vege-

table oils, such as olive and sesame oil, produce little reaction. Animal oils, such as milk fat and cod liver oil are much more irritating and especially so if they contain a large amount of fatty acids. While the pulmonary lesions are not as a rule destructive in character, hemorrhage and even gangrene may occur when chaulmoogra oil, rancid lard, or cod liver oil with a high percentage of fatty acids is aspirated in sufficient amount. The physical signs, both on clinical examination and in the x-ray film, are much like those of a bronchopneumonia. There are patchy areas of consolidation extending out from the hilum, usually more marked on the right side.

In a discussion of the etiology of pneumonia in infants one cannot as yet ignore a consideration of the role that has been, and to no negligible extent still is, played by infant wards, and the old-fashioned foundling home. Even under the most favorable circumstances it still happens that an infant who enters an infant ward for some minor illness acquires an upper respiratory tract infection, a pneumonia, and dies. One hesitates to dwell on the condition as many of us have known it in the past, and as it still exists to some extent under unfavorable conditions. The reasons why an infant ward presents an etiologic hazard are not hard to see. These infants are at a highly susceptible age. They come for the most part from the underprivileged class and have not had such food and hygienic surroundings as make for maximal resistance to infection. Under such unfavorable conditions they are now subjected to mass exposure to other patients, to nurses, interns, residents, attending men and visitors. The effect of herding, even on the adult, was amply exemplified in army cantonments during the World War. There is furthermore a lack of rest, so essential at that age and in sickness. There is too much noise, too many examinations, too much nursing care at regular hours. I think one may add there is too little individualization, too little mothering. It is interesting to note that while the newborn baby in maternity wards is hedged about by the most formidable array of precautions against infection there is relatively little danger here as compared with that which exists in the infant ward. I was glad to have Finkelstein confirm my own observation that the newborn infant is relatively immune to those infections during the first two or three months of life.

The corollary to all that has been said is obvious; no baby should be sent to an infant ward if he can be taken care of adequately in the home or in an Out-patient Department, and he should be sent out as soon as it is safe to do so. Interns, residents, nurses and visitors who have any respiratory tract infection should be excluded from the wards. I have tried to keep an open mind with reference to masks but am still in doubt. The present wide-spread tendency to substitute foster home care for institutional care is significant in this connection. Dr. Chapin who has developed a marvelous system of foster home care in New York, in what is known as the Speedwell Plan, once told me that he was devoting the rest of his life to furthering foster home care in order "to make up for the wrong he had committed in sending babies to infant wards."

While the etiology and classification of pneumonia in childhood is obviously complicated and may seem formidable, this has as yet relatively little bearing on the all important matter of treatment. After all is said and done, pneumonia is pneumonia and must be treated as such regardless of etiology and classification. The pediatrician has not been vitally interested, practically, in the use of specific sera, largely because the prognosis is so favorable in the very cases in which the sera might have a favorable action if we may reason by analogy with their effects in adults. That this attitude may need to be changed in the light of newer developments is not improbable, as will be evident from the discussion by Dr. Vonachen.

707 Fullerton Avenue.

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THE SHORT CUT

An ambitious young man went to a university professor and said: "Sir, I desire a course of training that will fit me to become the superintendent of a great railway system. How much will such a course cost, and how long will it take?"

"Young man," replied the professor, "such a course would cost you $2,000 and require 20 years of your time. But, on the other hand, by spending $300 of your money and three months of your time you may be elected to Congress. Once there you will feel yourself competent to direct not one but all the great railroad systems of our country."

SYMPTOMATOLOGY AND DIAGNOSIS OF PNEUMONIA IN CHILDREN

W. L. Crawford, M.D.
ROCKFORD, ILL.

The diagnosis of the different types of pneumonia in children requires consideration of most of the symptoms and other diagnostic features of this disease in the adult, but certain additional factors present themselves in the child. Not only are symptoms and actual physical findings in the child often different from those in the adult, but the differential diagnosis presents other conditions for consideration.

Factors of importance in discussing symptoms and diagnosis of pneumonia in infancy and childhood are numerous.

Respiration in early infancy is almost entirely abdominal or diaphragmatic, and this type predominates during the first year. Thoracic breathing develops after this. The shallower breathing means more rapid respiration and the rate in the new-born is two times that of the six year old, or even more.

The increased *pliability* of the infant's chest, as contrasted with the adult, will be obvious if one considers the cartilagenous construction of the thoracic framework, and the relatively poor turgor of the intercostal muscles and other soft tissues. This is very important; not only does it emphasize certain features such as the bulgings of effusions, and the retractions that accompany various types of dyspnea, but it also can lead into difficulty; if the child's position is not symmetrical from side to side, compression of the lungs will occur far more readily than in the adult and distortion of physical signs may be misleading.

Symptomatology of Lobar Pneumonia:

Sudden onset.

May have vomiting, or convulsion occasionally in the younger child, or a chill in the older child. Anorexia usually present.

Sickness is impressive, even if prostration is not apparent.

Fever rather high, 103 to 106.

Respiration rapid, often grunting, and ratio of respiration to pulse always increases.

Cough may or may not be severe or may be absent.

Pain is variable, dependent largely upon pleural involvement.

Drowsiness, delirium or twitchings often occur as central nervous system symptoms.

Signs of consolidation—more apparent in older child, with dullness or flatness, and bronchial breathing over the affected area. Deep breathing may be necessary to bring this out.

Râles early or late.

Course rapid, usually five or six or seven days, but variable.

Recovery rapid.

Symptomoatology of Bronchopneumonia:

Usually secondary to some infection.

Gradual onset.

Course and symptoms variable.

Child may not appear very sick.

Respiration is dyspneic.

Fever not typical.

Cough more pronounced.

More often involves several lobes.

Central nervous symptoms not so marked, early.

Signs of consolidation are less reliable—depend on distribution and size of lesions and may not be apparent on percussion and auscultation.

Râles are commoner throughout.

Course from few days to weeks, and recovery is usually by lysis.

Roentgen examination of the chest shows consolidation sometime during disease.

In the Mixed Types of Pneumonia:

Any or all of the above symptoms may be present, it is equally important to emphasize that they may be absent.

Masked or Concealed Pneumonias: are occasionally present, in which cases many days may elapse before the usual signs are detected. These are often spoken of as *central* pneumonias, but they are not always central in location, and often show peripherally with the x-ray, as a triangular shadow with the apex towards the hilus.

Symptoms of Interstitial pneumonia, with involvement of the frame-work of the lung tissues, are secondary to a careful history, showing a rather chronic illness, almost always with respiratory involvement preceding. Fever is usually mild, and the picture of lassitude and languor presents itself. Chest findings of dullness are relative; so are the râles and feebler respiratory efforts. X-ray is not diagnostic, and may show some of the features of atelectasis.

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Symptomatology of Lipoid Pneumonia:

Here again the history is very important, showing the possibility of entrance of oil into the respiratory tract, via nose drops, oral ingestion, or following vomiting of formulae. Here again the usual picture is one of a weak debilitated child, sick a long time, not thriving. It is commoner in very young children, but may occur in older ones whose cough reflex has been diminished, or who have been comatose, or aspirated oil.

Rapid respiration without dyspnea is the outstanding symptom.

A persistent and often non-productive cough is usually present.

Fever is absent in uncomplicated cases of lipoid pneumonia, but septic complications are common and a bronchopneumonia is often superimposed on a lipoid pneumonia during its *chronic* course of weeks or months.

X-ray shows rather constant features, usually consolidation is central, bilateral, more posterior and more extensive on the right side. In other words the periphery is apt to be clearer, because it is further from the source of supply of the etiologic factor, which follows the bronchial tree.

A lumpy appearance to the consolidation is suggestive.

The Differential Diagnosis of pneumonia involves a consideration of many conditions. We are familiar with the many extrathoracic conditions with which it may be confused; nervous symptoms often point towards meningitis; scarlet fever and other exanthem may occasionally be confusing at first; gastro-intestinal symptoms of vomiting, etc. may cloud the picture early, appendicitis is often difficult to rule out early, especially with involvement of diaphragmatic pleura, or with tympanitis and rarely, pneumonia and appendicitis occur in the presence of each other.

These intrathoracic conditions may simulate pneumonia in some respects by causing fever, dyspnea, dullness or interference with breath sounds.

Atelectasis
Hypostasis
Hernia
Collapse of Lung
Cardiac dilatation due to decompensation, following valvular diseases, endocarditis, glycogen storage, etc.
Pericarditis
Empyema
Tuberculosis
Neoplasms
Blood dyscrasias

A careful history and a complete examination will usually differentiate the lesion.

COMPLICATIONS, SEQUELAE, AND PROGNOSIS OF PNEUMONIA IN INFANTS AND CHILDREN

John Vonachen, M. D.
PEORIA, ILL.

In considering complications, sequelae and prognosis of pneumonia in infants and children we all realize that these vary with the particular type of pneumonia and likewise the organisms responsible for the infection.

One thinks off-hand that it is so well known to all of us that its discussion is hardly worthy of consideration yet, one is surprised at the variations.

Pleurisy itself is associated with a lobar pneumonia so often as part of the inflammatory process that it should be looked upon as part of the disease and not as a complication.

We all know that in lobar pneumonia, except for empyema, sequelae are rare while in interstitial bronchial pneumonia they are more frequent. Likewise in children, lobar pneumonia gives usually a favorable prognosis, except in small infants, while in interstitial bronchial pneumonia the prognosis must always be more or less guarded.

Pneumococcus pneumonia has most frequently as its complication otitis media but it is not always proper to classify this as a real complication, because of the fact that pneumococcal infection of the middle ear occurs independently of pneumonia. Trask[1] states that otitis media was noted in 30% of his type 1 pneumococcus pneumonia, in 47% of his type III and 29% of the miscellaneous pneumococcal pneumonias. In his series there were only 2 cases of mastoiditis.

Of what value are blood cultures in prognosticating the early occurrence of empyema? Again in Trask's series empyema developed in 60% of the children who had positive blood cultures and in about 10% of those with negative cultures. This of course refers to type 1, pneumococcus pneumonia.

Empyema following lobar pneumonia usually begins several days after the crisis but it may occur during the disease. The first evidence is

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usually a change in the physical findings in the chest. The bronchial breathing is replaced by distant breast sounds and the dullness is superceded by a flatness. There is not sufficient accumulation in the pleural sac to make the diagnosis and our attention is drawn to it by the fact that the temperature has not returned to normal or again a remittent or intermittent temperature may make us suspect this condition.

Among a group of 47 cases of pneumococcus empyema there were 5 deaths and in each fatal case some other serious complication was present in addition to the empyema.

Otitis Media. This may develop at any time during a pneumonia. The temperature may go high without any apparent reason as there may be an otitis without pain. No cause may be found for the pyrexia until an otoscope reveals the bulging drum. Likewise an otitis may be responsible for failure of the temperature to fall at the usual time or also may be due to an increased rise after the crisis. Remember in every case of pneumonia the ear drums should be examined daily.

Other purulent pneumococcus complications were pericarditis, peritonitis and meningitis. These complications in the majority of instances were fatal.

If convalescence is prolonged, occasionally one may see a cerebral thrombosis with hemiplegia. One also sees bronchiectasis following this type of pneumonia but you can nearly always get a history of predisposing whooping cough prior to the pneumonia when this occurs.

Pericarditis. Likewise an infrequent complication. However it does occur and is usually overlooked, being most frequently found at post mortem examination revealing either serous or purulent fluid in the pericardial sac. It should be suspected when the child fails to improve after the crisis.

Pneumococcus Peritonitis. I mentional this briefly only to state that it may develop secondarily following lobar pneumonia and differs very little from any other type of peritonitis.

Meningitis. Convulsions which develop late should direct attention to a possible meningitis as a complication, especially if there is vomiting, slow irregular pulse, change in pupil reflexes and stupor. Of course a lumbar puncture should be made and the findings are usually cloudy fluid under pressure with increased globulin, high cell count and on stain and culture the pneumococcus is invariably found.

Myocarditis occurs where there is a very virulent organism with a very high temperature. The heart then becomes extremely irregular. The first sound is weak and lacking in distinctness but usually there is no cyanosis.

Endocarditis. This is as a rule infrequent after lobar pneumonia but may appear during the disease. Unlike endocarditis following other conditions there is usually some precordial pain and on auscultation an endocardial murmur. Again I emphasize in pneumonias the heart should be examined daily.

Pneumococcic Septicemia. It is by this means that the organism in the blood stream may localize in the endocardium, joints, meninges and peritoneum. A blood culture taken before localized symptoms develop may demonstrate the organism.

Abscess and gangrene of the lung. They are closely related, give the same symptoms and only with difficulty can be differentiated during life. The pneumococcus being a pus forming organism, it would seem rational for an abscess of the lung to be more frequent than is observed. Of course an abscess would follow the rupture of an empyrema into the lung. In these cases the leucocyte count remains high and if gangrene exists there is a characteristic odor to the sputum. While x-ray examination may cast no particular diagnostic shadow yet it will help us differentiate from an empyema or a tuberculosis.

Arthritis and Parotitis. These are also not frequent after lobar pneumonia yet I mention their possibility of development, although any infectious disease may be followed by an arthritis.

In contrast what about the complications after bronchopneumonia? In their order of frequency they are otitis media, vomiting and diarrhea after gastrointestinal complications and empyrema. Pulmonary tuberculosis, meningitis, pericarditis and nephritis may be found in a small per cent. of cases. On the other hand after bronchopneumonia pulmonary abscess is a frequent complication but is rarely diagnosed except at autopsy and may be responsible for the high mortality in this disease in infants.

After bronchopneumonia remember that a paroxysmal chronic cough which as time goes on is accompanied by the production of large quantities of sputum is suggestive of bronchiectasis.

Emphysema is rarely detected by physical examination but is frequently found at autopsy following bronchopneumonia.

If we consider this subject from the standpoint of influenza, bacterial bronchiolitis and pneumococcus pneumonia we have again a slightly different array of complications and sequelae. In this condition it is so usual for râles to persist for a considerable period after the fever disappears that delayed resolution might be termed a feature of both diseases rather than a complication. Usually signs persist into the 4th week of the disease. In 17% of bronchopneumonias and in 16% of cases of influenzal bronchiolitis, otitis media is the most frequent complication, occurring close to 50% in all cases of bronchopneumonia and in 38% of the cases of influenzal pulmonary infections. Again mastoiditis occurs only rarely and then nearly always due to a hemolytic streptococcus as a secondary infection.

Characteristic of the influenza pneumonias is the tendency towards relapses which occur in about 35% of the cases and it is interesting to observe in the literature that obstructive laryngitis occurs in about 8% of the influenza pneumonias in children and that the mortality rate is unusually high when this occurs even when tracheotomy was performed. In these cases it afforded only temporary relief. Empyema, subcutaneous emphysema and bronchiectasis are less common in these types of pneumonia.

If we consider the subject from a standpoint of hemolytic streptococcus pneumonia we find empyema occurring quite frequently and with a mortality rate of approximately 50%. In these cases the fluid is usually thin and contains streptococci by direct smear and it is assumed that the complication itself does not increase the gravity of the situation but that there are more deaths due to the general severity of the disease. Again in hemolytic streptococcus pneumonia when pericarditis or peritonitis occurs the result is usually fatal. Otitis media occurs in about 25% of these cases.

In a study made in an infants' home by Barenberg, Green and Abramson,[2] there were 505 cases of pneumonia in this group and 74 deaths; 214 of these cases occurred between the ages of 1 and 1 years and there were 33 deaths in this age group. Jones[3] showed that a high death rate in children under 5 years from pneumonia was coincident with the 1918 influenza epidemic; a fact contrary to the idea that influenza in children is a mild disease. We have always felt that measles and influenza are the most important predisposing illnesses as relates to mortality in children. Those now studying the types of pneumococcus contend that the type 1 pneumonia when seen in uncomplicated pneumonia had a comparatively low mortality; therefore we would conclude that the things that make for a bad prognosis are the presence of hemolytic streptococci, staphylococci and influenza bacilli. The first two can be demonstrated in the pleural exudate. Pure pneumococcus empyema carries usually a mortality rate of about 12%. We all know from the clinical experience that remarkable recovery occurs in pneumonia and it is particularly hazardous to prognosticate death. The outlook after whooping cough particularly with high leucocyte counts is bad and pneumonia occurring in rachitic and malnourished infants should be considered grave.

Generally speaking, the course of lobar pneumonia is quite stormy yet the outcome is favorable in most cases. When the fall in temperature comes there is a marked improvement in the clinical findings. Resolution takes place quickly and unless there is a delay as evidenced by physical examination, there is no damage to the lung. If, however, the consolidation is persistent after the fall in temperature, it may be months before the lung returns to normal. Those cases of lobar pneumonia that terminate in death have as a rule a soft compressible pulse and a definite tendency toward coldness of the hands and feet. This is always a bad prognostic sign because it is evidence of cardiac fatigue.

It occurs particularly in those cases involving more than one lobe where the child dies of respiratory failure and where there are varying degrees of cyanosis, the typical slate color imparted to the entire skin surface more marked about the lips and fingernails. Should the child recover from its pneumonia after complications develop they will, of course, hold the prognosis in suspense.

In bronchial pneumonia our prognosis is naturally not so optimistic. First of all because the disease occurs most frequently in infants and very young children and again because bronchial pneumonia is so frequently a secondary complication of some other severe illness. The physical

condition of the patient also alters the outlook. Those who are vigorous and healthy are more apt to recover and again the prognosis depends on the nature of the primary disease causing the bronchopneumonia. We all know of the gravity of bronchopneumonia following pertussis, measles, tuberculosis and diphtheria. The time of the year should be taken into consideration. More deaths occur in the cold months of winter and early spring. If the infant is blessed with good digestive organs, the nutrition is easily maintained and it has a much better chance. I do not believe statistics are of much value particularly if they are taken from institutions where the mortality rate in bronchopneumonia is much higher than in cases treated at home. You will find that they vary from 30 to 75% under varied circumstances. I also regard as a dangerous sign a temperature which remains low in a child that is seriously ill because it indicates an overwhelming infection which prevents the natural reaction of fever. In bronchopneumonia the virulence of infection may be such that death can occur at the end of a few hours or the inflammation may be protracted for weeks. The outlook is most hopeful in those terminating during the second week which is of course in contrast to the crisis of lobar pneumonia which occurs from the 3rd to 7th day.

Recently I have followed with interest the work of Bullowa[4] in the Harlem Hospital in New York because of its relationship to type 14 pneumonia and I wish briefly to show what conclusions he arrived at in regard to this particular type and also how antiserum influenced the prognosis in his cases. He studied 547 cases of pneumonia in children and found type 14 in 16.1%.

Slide 1 shows the annual incidence of cases in each of six years.

Slide 2, in Figure 2, which contrasts, in the five and one-half year period from July 1, 1928, to December 31, 1933, the frequency of Type 1 and Type 14 by year of age, it is shown that before puberty Pneumococcus Type 1 and Pneumococcus Type 14 are about equally frequent, and together they cause about 31.3% of the pneumococcus pneumonias in children. There is a marked difference in their selection, however; whereas Type 14 causes one-fifth of the pneumococcus pneumonias during the first three years, after age six it occurs less frequently than Type 1. The childhood mortality for Type 14 is much greater than for Type 1. For Type 1 it is 6.4%; for Type 14, 16.1%. Children of four or five years of age either meet new exposures in the street, the day nursery and the school, or have a changed susceptibility, which latter fact may account for the difference in the organism causing the pneumonias. After infancy Type 14 surrenders its dominance to Type 1, though it does not yield its lead in fatality.

Slide 3 shows the distribution of age incidence-first total number of cases and then separately for both lobar and bronchopneumonia.

Slide 4 shows results of serum. Treatment in adults and children for Type 14. Note particularly the improved percentage of recoveries in those receiving serum.

Slide 5 shows temperature chart, mode of giving anti-serum and pulse after administration of anti-serum.

Slide 6 shows temperature chart of an eleven month marasmus infant admitted on first day of pneumonia, treated on the second day, crisis came on third day with agglutination on fourth day. Type was obtained by lung suction. Two intramuscular injections of 5,000 units each were given on 2nd and 3rd days, twelve hours apart.

Bullowa summarized as follows his work with Type 14: It is a virulent organism for human beings, selecting by preference infants and young children, in whom without anti-serum the pneumonias are usually of long duration. Upon recovery agglutinins appeared. When sufficient anti-serum was given in Type 14 there occurred defervescence and earlier recovery.

Conclusions: Improved prognosis in infants and children, particularly as to Type 1 and 14 by means of lung suction and administration of proper anti-serum as soon as this is more available and its cost is not prohibitive.

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THE TREATMENT OF PNEUMONIA IN CHILDREN

JOSEPH K. CALVIN, M.D.
CHICAGO

Prophylaxis. Pneumonia in children is usually preceded by an upper respiratory infection such as the common "cold," bronchitis, grippe, "flu" or whatever you might call it, frequently accompanied by several days of mild fever. The question arises: Is it possible to forestall the pneumonia. I believe that it often is possible. The sudden recrudescence of fever and severe symptoms ushering in the pneumonia usually occur after a day or two of normal temperature following the insidious febrile grippal infection. Consequently, especially during the pneumonia season, the acutely febrile child should be put fully and completely to bed, not always an easy task to carry out in younger children, who will not voluntarily remain in bed unless desperately ill. Bed should be insisted on until the temperature has been normal (rectally under 100°) for at least two or three days to avoid this so-called relapse. Generally speaking, bed rest is best continued also until the appetite returns, as until then convalescence is not well established.

Chilling should be carefully avoided by providing warm enough bed clothes, etc., and especially if a bed pan is not used, the child should have warm foot covering and be dressed with a robe or blanket before being carried to the toilet.

It is very important to prevent secondary or superinfections by isolating the patient from all children and most adult visitors.

Active Treatment. If pneumonia develops in spite of these precautions, or if already present when the child is first seen, I believe most of us realize that it is a self-limited disease, mostly running a favorable course in children, and should not be over-treated. There are, however, factors in therapy that undoubtedly tend to promote a favorable outcome, especially in the more seriously ill.

Rest, both physical and mental, cannot be overemphasized. Cough, pain and delirium should be controlled sufficiently by hydrotherapy and sedatives to assure rest. Mental rest can be obtained by not overtreating, especially with relatively nonessential procedures that may frighten and disturb the child. Even the nurse should disturb the patient as little as possible and not be overzealous about keeping the bed in order, the patient clean, his teeth brushed and his hair combed, if these procedures annoy him, while he is seriously ill. However, his position should be changed from time to time and infants should be held part of the time. Incidentally, the infant's shirt should not be tightly pinned to the diaper, as respiration is definitely interfered with thereby. Visitors and even near relatives in the sickroom should be reduced to the minimum, especially if their presence induces excitement.

Temperature of the Room. Inasmuch as most young children with pneumonia have had a preceding or associated bronchitis, moderately warm, moist air provides the greatest comfort. Fresh air without draft is also essential. This ideal of fresh, moist, warm air can be obtained, even during the winter, by opening the window moderately behind a screen or ventilator, keeping the radiator turned on but covered with a wet towel, or hanging wet sheets about, or boiling water in the room off and on to provide moisture. Occasionally the child, if not too sick, can be carried into another room while the sickroom is being thoroughly aired, and the fresh air warmed before returning the child.

Diet. The child with pneumonia usually loses his appetite completely, vomiting is frequent at the onset and constipation is the rule. Serious ketosis and disturbances of mineral and water metabolism occur easily. Fluids and easily assimilated carbohydrates are essential during the acute stage of the illness to combat toxemia, dehydration and ketosis and to promote diuresis. The little patient will prefer drinking to eating, especially during the first few days. Inasmuch as the child has no appetite, he will only take the foods that he normally likes a great deal. Fortunately these are the easily digestible carbohydates, namely, custards, jellies, junkets, honey, malted milk, ice cream, simple cookies, lump sugar, hard candies, crackers, etc. These foods also cause increased thirst because of their sweetness, which promotes the desire for fluids, such as sweetened fruit juices, sweetened tea, ginger-ale, broths, milk, etc. Salty crackers, which children like, also promote thirst. When vomiting is present, milk will often aggravate it, but in the absence of vomiting or tympanites, milk

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provides an excellent and well taken food. Skimmed milk is preferable, as fats of all kinds are wisely restricted in the diet because of the slower emptying time of the stomach during febrile states. It is not a good plan to force the child to eat, as it frequently only results in vomiting and may lead to a persistent anorexia. Most children, not too sick, fed small amounts frequently, with a little coaxing will take enough simple carbohydrates and fluids to tide them over the acute febrile days. As soon as the child's appetite returns, and it usually comes back with a "bang" during convalescence, the child may have a full diet, providing there is no gastrointestinal contraindication.

Fluids. The usual order given to the attendant is to force liquids. This can be greatly overdone. It may considerably disturb the child's much needed rest, because of frequent awakenings to administer fluids and more awakenings to urinate them. Besides, it may lead to vomiting, when more fluid will be lost than is taken in. A very simple method available to the attendant, to judge whether a child has had sufficient liquid is not alone to measure the actual amount imbibed or excreted, but to observe the color of the urine. If the urine has its natural light yellow color, enough fluids are being taken; if a deep amber color, not enough fluids are being taken and if the urine looks like water, too much fluid is being forced. Seldom is it necessary to administer fluids in any way except by mouth, so long as the urine retains its normal color. The physician can more scientifically determine whether the child is receiving sufficient fluid by determining the specific gravity of the urine.

In the more severe cases, when the child continues to vomit or have severe diarrhea or is too dyspneic or too sick to take adequate fluids by mouth, the intravenous gravity drip is life saving. This is a relatively easy method of administering fluids once the technique is mastered, and much less painful and annoying to the child than the subcutaneous route. When dextrose and fluid are urgently needed, as in collapse, ketosis, anuria, etc., the intravenous method is the one of choice. In older children an arm vein can fairly easily be punctured, and in younger children an ankle vein just anterior to the internal malleolus of the ankle can easily be dissected out. Of course, all apparatus and solutions must be especially prepared for intravenous injections. The usual fluids given are 5% or 10% dextrose in normal saline or Hartmann's or Ringer's solution. The drip should average about 40 to 60 drops a minute, which will not overwhelm the circulatory system with sudden large increases in the water content of the blood. The output, color and specific gravity of the urine are again the guide as to the amount and rapidity of the injections. Avoid giving too much fluid.

When intravenous fluids cannot be given for whatever reason and parenteral injections of fluids are necessary, the subcutaneous route may be employed, preferably in the thighs, by gravity in older children, by syringe injections in infants—never in the chest, abdomen or back areas in cases of pneumonia. Normal saline and Ringer's solution are rapidly and well absorbed, while dextrose solutions are slowly and poorly absorbed subcutaneously. These subcutaneous injections are usually painful to children, causing considerable restlessness and at time a local anesthetic added to the solution is advisable.

Occasionally during vomiting or refusal to take fluids by mouth, rectal administration may be attempted successfully if there are no tympanites; 5% dextrose in normal saline is used. Because of lack of cooperation this method is usually not successful under four years of age. A child of four years will retain 3 to 4 oz. every 4 hours, if the buttocks are held together for five minutes or so after the fluid is given, until the desire to expel it has subsided. The rectal drip method is not successful as a rule.

Hydrotherapy is at times a valuable adjunct. A fever that is not unduly high needs no reducing, as it is probably a valuable part of the normal mechanism for combating bacterial invasion. As we all know, a high fever in pneumonia is a better sign than a low one. If, however, the fever produces restlessness, lack of sleep, discomfort, delirium or convulsions, or there is hyperpyrexia, then measures may be instituted to reduce it. Sponging with tepid water and alcohol really has little effect on the fever, although it may refresh the patient. It may, however, subject the child to unnecessary handling, chilling and exposure. The Priessnitz, a light, tepid, wet flannel jacket about the body, enclosed in oilsilk, will often remarkably quiet a restless delirious patient and thus avoid other sedatives. It should be kept moist with tepid water. It can be left on indefinitely if the child falls asleep.

as it soon takes on the temperature of the body and eventually drys out. An ice bag can be placed on the forehead, although most children fight against this. For extreme hyperpyrexia, cold packs and cold enemas may be used very cautiously.

Drug Therapy. Drugs play a minor role in the routine treatment of pneumonia in children, but if a definite indication exists they should be used to meet it.

Sedatives are the most important group. Aspirin in proper doses (from 1 grain at 1 year of age to 5 grains at 6 years or over), may be repeated as often as every 4 hours or so and is relatively harmless. It does relieve pain and discomfort, thereby promoting essential sleep and appetite. Alkalies, as the citrates, said to be of value in febrile conditions, can be combined with the aspirin. If the cough, pain and restlessness cannot be controlled by aspirin and hydrotherapy, then barbiturates may be prescribed or narcotics such as paregoric, codeine or even morphine to secure the essential life preserving rest. In fact, morphine may be a most valuable drug during a severe pneumonia, when quiet is very essential to life. Doses just sufficient to quiet the child should be used, i.e., gr. 1/12 in an 8 year old. It should not be used when there is much respiratory depression and breathing is an effort.

Stimulants are rarely necessary except in collapse, when adrenalin, hypodermically, in doses of 2 to 5 minims, is the most effective in bolstering the failing peripheral circulation and blood pressure. Caffeine sodium benzoate is also an excellent stimulant, but if used over any length of time may increase the cerebral excitement. Coramine is valuable. Whiskey is used by a number of good clinicians, especially in young, weak infants and asthenic children. Aromatic spirits of ammonia on cotton, held before the nostrils, often is a quick way to overcome a sudden cyanotic attack.

Expectorants. When the secretions are tenacious and there is much coughing, any one of a number of expectorants may be used, such as syrup of ipecac, ammonium chloride, guaiacol and later during convalescence the iodides. Atropin is usually contraindicated, except in a very wet pneumonia or edema of the lungs, as it thickens up the already tenacious mucus, thereby promoting a blocking of the bronchi, with resulting atelectasis.

Local applications such as counterirritant ointments, mustard plasters, etc., have been largely discarded, although occasionally in young children a mustard poultice seems to give some relief.

Cathartics. A daily evacuation is desirable and this can be accomplished by a mild laxative such as milk of magnesia, an enema or suppository, often depending on the mother's or child's preference. In fact, an enema every other day suffices if there is no tympanites, as there is not much residue as a result of the anorexia. Frequent enemas every few hours to combat fever are both useless and harmful. Drastic purging with castor oil, calomel or salts is definitely contraindicated and is weakening and disturbing to the child.

Tympanites calls for special consideration, as it is a manifestation of toxic ileus and is a grave sign. The upward pressure on the diaphragm is an added handicap by decreasing the available air space in the thorax. Ordinary enemas or the rectal tube and stupes may suffice, but when marked, the 1-2-3 enema consisting of 1 ounce of glycerin, 2 ounces of magnesium sulphate and 3 ounces of water is very valuable. Pituitrin hypodermically is of value, from m iii to xv, depending on the age of the child. Occasionally the intraperitoneal injection of this drug is lifesaving. It is well to avoid milk in the diet when tympanites are marked.

Oxygen has a definite place in the treatment of pneumonia in children. Oxygen should not be used just as a last resort for the benefit of the family nor should it be used unless a definite indication exists. The child with the ordinary pneumonia, who is comfortable and shows no respiratory or cardiac embarrassment, does not need oxygen. There is nothing specific about oxygen therapy other than its relief of anoxemia. Consequently, dyspnea or cyanosis are its best indications in children.

The tent method is usually much less distressing to the child than administration by nasal catheter, especially if a familiar plaything that the child has an effection for is also placed in the tent. Usually a 50% concentration of oxygen is started, and then as the disease subsides it is gradually reduced to 20% before removing the tent. The child should not be removed from

the tent for unimportant things and subjected to the great shock of abrupt changes in oxygen tension, with the resulting sudden demands placed on his circulation. The temperature in the oxygen tent is usually cool and the child may need warmer bed clothing.

The nasal catheter method also has its advantages. It is more economical and permits better examination of the patient, therapeutic procedures and nursing care without changing the amount of oxygen inspired.

Blood transfusions are not indicated in the ordinary case of pneumonia. However, in certain cases of pneumococcus pneumonia which are alarmingly toxic or in shock or collapse, a small intravenous transfusion of properly typed and matched blood seems to benefit them considerably and is apparently without harmful effects. In the mixed infection pneumonias, when they are prolonged into the second week, as they often are, blood transfusions often seem to definitely start the patient toward recovery. In previously debilitated, anemic, malnourished children, often just recovering from a preceding contagious disease or those with low grade protracted pneumonias or sepsis, the supportive value of transfusion is certain, whatever the immunologic value may be. The danger of cardiac dilatation and overload can be avoided by giving slowly only relatively small amounts of blood.

Specific Therapy. Specific immune sera such as Felton's Type I antipneumococcus serum has not been used extensively in the treatment of pneumonia in children. First, because most pneumonias in children are not caused by the Type I pneumococcus, and secondly, the very favorable outcome in lobar pneumonia in children, the kind most likely to be caused by Type I. Another reason is the comparative difficulty in obtaining sputum from a child, as they do not expectorate. To stick a swab into the larynx of a desperately sick child is not an ideal therapeutic procedure. However, if the child is desperately ill with a pneumonia proved to be Type I, II or VIII, there is certainly no special contraindication to specific therapy.

Convalescent serum has also been used, but no definite conclusions can as yet be drawn as to its value. Here again the typing is essential, and if convalescent serum corresponding to the type pneumococcus is available, no harm can result from its use.

Hospitalization. Every case does not need hospital care. However, in severely ill pneumonias so many more life-saving procedures can be accomplished, if necessary, in a well-equipped hospital that I believe that is where this type of child belongs. He should, however, be carefully isolated from his neighbor for mutual protection from crossed and superinfections.

It goes without saying that complications of pneumonia, especially otitis media and empyema, should be carefully watched for and treated as and if they arise. The allotted time, however, does not permit a discussion of the treatment of the complications of pneumonia in children in this paper.

DISCUSSION ON SYMPOSIUM ON PNEUMONIA IN CHILDREN

Dr. Scott J. Wilkinson, Decatur: I think the subject has been very well covered. There is one thing that has interested me and that is the trend of the discussion toward the etiological viewpoint. I would say that in the past pneumonia has been more an anatomical diagnosis than anything else. Nobody would talk about meningitis today without distinguishing the type considered. In contrast appendicitis is still a regional diagnosis which may not remain so in the future. While the etiological aspect of pneumonia does not have much practical importance now, it may have greater therapeutic value later with advances in specific chemotherapy and sera.

One other thing I wonder about. There must be many mild, atypical pneumonias which are missed without x-ray study because the patients are not ill enough to require hospitalization. When diagnostic x-rays of the chest are taken among the sicker patients during an epidemic of upper respiratory infections it is often surprising to see the amount of lung involvement encountered in the absence of definite physical findings and clinical behavior suggestive of pulmonary disease. Possibly the recognized cases of pneumonia represent the severe types of pneumococcus, and certain other infections occurring during the age of primary exposure to endemic bacteria.

Dr. Frederick Maurer, Peoria: There are just a few points to which I should like to call attention. The leucocyte count, as we all known in lobar pneumonia and the other pneumonias, but particularly lobar, is apt to be high. I do not believe it was mentioned what the leucocyte count might be in the interstitial type of pneumonia or whether or not there was a leucocyte count over normal in the lipoid type of pneumonia.

In speaking of pneumonia in adults, we are often impressed with the occurrence of labial herpes, and I would like to know how often this is a diagnostic sign in children.

We have been told that lobar pneumonia occurs most often in children over three years of age, but I am

under the impression that I have seen some lobar pneumonias under that age and even under the age of two. I would like to know whether or not there is a certain percentage of lobar pneumonia which occurs under the age of two years. Bronchopneumonia occurs most frequently we know under the age of three years.

One of the speakers has brought out the symptom of irritability of the patient in the two types of pneumonia, the lobar type being the type in which less irritability seems to occur; the patient lies there more or less relaxed. In the adult type of lobar pneumonia much stress has been placed upon the symptom of expectoration. No stress can be placed upon that, I believe, in discussing the symptomatology of lobar pneumonia in infants. I have never seen a patient expectorate very much until he was four to six years of age. I have noticed in my cases of the lobar type that the child will frequently curl up on the affected side, and if you want to know which side the pneumonia is on, just roll him on the other side and it will set up an irritability and the patient will start to cough and you can be sure you have pneumonia on the upper side.

Speaking of collapse, in the differential diagnosis I believe it should be brought out that this collapse does occur to some extent following surgical procedures under inhalation anesthesia on other parts of the body. I have seen patients come from the operating room and within twenty-four hours exhibit symptoms of rapid respiration and dyspnea and upon fluoroscopy and x-ray we have been able to demonstrate collapse of one or more lobes of the lung.

I believe the other points in the diagnosis and symptoms have been adequately covered.

Dr. W. M. Whitaker, Quincy: Dr. Vonachen has so beautifully covered his subject that I hesitate to say a great deal. However, there are a few points that deserve some stress. The complications of pneumonia are of great importance because, as many men have said, it is upon the occurrence of these complications that the outcome depends. As Dr. Vonachen has said, otitis media is the most common complication. One point about this which we should stress. Due to the head retraction and slight stiffness of the neck the physician feels that he may be dealing with early pneumococcus meningitis. Another confusing condition is meningismus. We see this not uncommonly in lobar pneumonia, particularly in the right upper lobe. Careful examination of the tympanic membrane and spinal puncture will prove or disprove the presence of these conditions. The importance of empyema has been emphasized rightly, but there are some points about this condition which can stand more stress. It has been my experience to see in many cases of lobar pneumonia, particularly the type seen in younger children, a rather large purulent effusion, frequently occurring early in the course of the disease and known as syn-pneumonia empyema. This is important because treatment must be conservative. It is one type in which the old slogan "Be early to aspirate and slow to operate" is very wise. This represents a generalized infection of the lung and pleura. In addition, the individual case may develop a pneumococcic peritonitis; that is important but very rare. Rolleston collected only eleven such cases in a series of 4,000 cases of pneumonia. It adds a great deal of gravity to any case. As you know, the symptoms may be very confusing and, due to the fact that many children have a great deal of tympanites, the diagnosis is very difficult. In some of these cases where the condition is suspected, it is valuable to do a pritoneal puncture. It is well to say that the treatment for this condition is primarily conservative, delaying any surgical procedure until localization of the pus in the peritoneal cavity occurs.

I was glad to hear of the importance of type 14 pneumonia. As Dr. Vonschen brought out, this type 14 has been shown to be particularly important in children under six years of age. The majority of pneumonias we see in older children are types 1 and 2.

I think in conclusion that the prognosis of pneumonia in children depends upon several factors. First of all, the age of the child is of primary importance. All investigations show that children under two years of age have two to three times higher mortality rates, regardless of the type of pneumonia or infecting organism. The type of clinical pneumonia resulting is very important in the prognosis. Fortunately the mortality of lobar pneumonia in all ages of children approximates only one-half that of bronchopneumonia. The third point has to do with the type of infecting organism present and the fourth, and one of the most important in any child, depends upon the detection and recognition of the importance of complications and the physician's ability to alleviate properly these complications.

Dr. King Woodward, Rockford: I think that the home care of the normal pneumococcic pneumonia should be stressed. There we have less agitation from interns and nurses and the average remedies can be administered.

I would like to take exception to Dr. Calvin's remarks about the oxygen tent therapy in treatment of pneumonias. I feel that his remarks are very true in the child under three years of age but I think that the nasal catheter administration is as efficacious, if not more so, in the older child. It is less expensive and lessens disturbance to the child and after the first few hours he becomes accustomed to it and I feel that it is very valuable. As many as eight or ten liters of oxygen can be given to the patient, according to his needs.

Another point which has not been brought out in this discussion is that the blood chlorides are depleted. I have found that a salt cocktail may be given by mouth which will increase the reserve of the blood chlorides by using 1 teaspoon of table salt with two lemons, six oranges and six teaspoonfuls of sugar and diluting with various beverages, such as ginger ale, up to two quarts.

There is another remark I meant to make about oxygen therapy. It is very important that the nasal catheter be properly applied. You must be sure that there are multiple holes in the catheter and that the tip of the catheter is just seen in the pharynx and not projecting down to cause swallowing of air. At the University of Wisconsin they have a unique set-up. The oxygen tanks are stored in one building and the

oxygen is piped across the street; they tap the oxygen from outlets in the walls and they employ oxygen very extensively in many conditions.

In closing I should like to emphasize the importance of complete mental and physical rest with maintenance of body fluids and oxygen and other therapeutic measures to be given symptomatically.

Dr. Frank E. Inks, Princeton: I would like to emphasize the fact that if a little care is given with the intranasal use of oxygen, most children will handle it well. In the town where I practice we do not have a tent but by being careful we have saved the lives of several children by using the nasal catheter.

I am glad to have heard about the giving of salt. It has been my custom to give most children a salt drink. They will take a pint of water with salt in it where they will not take plain water.

Dr. E. T. McEnery, Chicago: Some of the cases reported today should not be classified as unresolved pneumonias but as a pulmonary condition in a prebronchiectatic stage. If bronchoscopic examination and drainage were used you could prevent this case from developing bronchiectasis a few months later.

Dr. Gerald Cline, Bloomington: I am sure we are all agreed that this morning's discussion has not only been a grand review but that it has emphasized many of the newer important phases in the diagnosis and treatment of pneumonia in children. The discussion on lipoid pneumonia especially was of interest to me. I know in the past I have stumbled over this diagnosis on several occasions. Quite often we do not advise x-ray because of finances but it seems that this procedure if carried out more often will help clear up some of our perplexing dyspneic and cyanotic attacks seen in the very young.

Apparently no one has mentioned the asthmatic child with his picture of dyspnea and cyonosis, specially in regard to the differential diagnosis of pneumonia. Quite frequently, especially in the fall months, we see little Johnny who has kicked and played in the dusty and smokey leaves on his way from school, suddenly become ill with high fever, croupy cough, dyspnea and wheezing and even acute pain in the chest with numerous mucous and musical rales throughout both lungs. Of course, these symptoms might very well suggest oncoming pneumonia, but with epinephrine, warm air and steam, in a few hours or at any rate the next morning, Johnny again presents the picture of a well child. Recently, I am qiute convinced that this same clinical picture does occur in very small infants as well. Naturally the child whom we already know to be allergic is much oftener the victim.

In behalf of the officers of this conference I wish to thank all the participants in this very timely program.

Dr. Joseph Brennemann, Chicago (in closing): I would say that perhaps my remarks were misunderstood, because uncomplicated lobar pneumonia can occur at any age; it is the typical pneumonia.

I am very much interested in otitis media in connection with pneumonia. One of our men does practically nothing for these ears and I feel a good deal the same way.

I agree with what has been said about home treatment of these patients and think it applies also to a good many other things. A children's hospital is a good place to keep children out of, unless they have to go there for something which cannot be taken care of at home or in an outpatient department .

Dr. W. L. Crawford, Rockford (in closing): I wash to thank Dr. Maurer for directing our attention to the leucocyte count in different types of pneumonia. It certainly should not be overlooked. There is a marked leucocytosis in the acute forms of broncho- and lobar pneumonia, and there is a leucopenia in those children in whom the hematopoietic system fails. The interstitial pneumonia has a milder leucocytosis as the drain on the bone marrow is not as high as in the acute forms. The lipoid pneumonia is not an infective process; it is an artificial process and a leucocytosis is not necessarily a part of it, but it is a rare case that during its course, in these asthenic youngsters, does not have a complicating infection of the upper respiratory tract and as a result a complicating leucocytosis of milder degree, but leucocytosis is not a part of the lipoid pneumonia itself.

As to the question of herpes, I think herpes in a lobar pneumonia is a quite common accompaniment. It is not as common in bronchopneumonia.

Dr. John R. Vonachen, Peoria (in closing): I think we should not let the internists steal our smoke in regard to the typing of pneumonias. After all, we have more material on hand than probably any other group and we should avail ourselves of the opportunity and not adopt the attitude that most of these children get well. Even if the prognosis is good, we can better it a lot if we take an interest in the type.

Dr. Joseph K. Calvin, Chicago (in closing): I would like to say a few things in closing. Regarding home versus hospital care of pneumonia, I do not want to leave the impression that all these patients should be hospitalized. Many of them should not be. When the patient is quite ill and requires special treatment, such as oxygen, parenteral fluids, blood transfusions, etc., I think, if he can be properly isolated in a good hospital, the facilities for watching him are so much better there, that that should be done. The ordinary pneumonia can be satisfactorily handled at home, but one must watch for anything of serious import, and when that occurs hospitalize the patient immediately, if this can be done safely.

Regarding the nasal catheter versus the oxygen tent, both are very valuable. I think it is easier for an inexperienced person to use the tent because, unless the catheter is employed properly, the child will swallow the oxygen instead of inhaling it. My general impression is that these children are more comfortable in a tent, and are more rapidly relieved of dyspnea. I know that at the University of Wisconsin they use the catheter method a great deal and have had good results. At the Cook County Hospital we cannot provide tents for all the children, and the catheter is a life-saving measure.

Regarding the low blood chlorides, I have never added salt to the liquids taken by mouth, but I have

advised eating salty crackers. This will also increase thirst, and the children will drink more fluids.

Regarding treatment of some of the complications, Dr. Whitaker pointed out that empyema during the acute pneumonia should be treated by aspiration rather than by more radical surgery, if possible. I agree with Dr. Brennemann about the conservative treatment of otitis media complicating pneumonia. I feel that pneumococcic peritonitis should not be operated upon until there is localization of the pus.

Regarding moist air, I feel that many of these cases start out as a bronchitis and we know that warm moist air is soothing for that type of infection, but we must warn mothers and nurses not to overdo it.

SADDLE NOSE

A Report on the Use of Ivory and Cartilage Implants

SAMUEL SALINGER, M. D.,
CHICAGO

In 1931 I published my results in a series of 50 patients in whom ivory was used for the correction of saddle or flat nose. Since that time I have used this material in 65 additional patients and am satisfied that the method is safe and will yield lasting results if properly done. The very first patient in whom I had used ivory in 1925 still retains the implant in its original position and reveals neither the slightest sign of a foreign body reaction nor evidence of deterioration of the ivory. (Gluck[1] showed a case where ivory was retained for 30 years.)

It is not my purpose in this paper to enter into a controversy as to the relative merits of costal cartilage and ivory nor to decry in any manner the value of the former. I admit that costal cartilage is an ideal implant material for most cases but at the same time I am convinced that the operation is not a simple one, particularly for the occasional operator. If improperly done or inaccurately carried out it will fail to satisfy the patient who will thenceforth carry upon his person not one but two scars to remind him of an unsuccessful operation. Most of my patients, particularly women, rebel against the chest incision necessary for the removal of the cartilage and gladly embrace the alternative of ivory when the two methods are explained to them. In proposing an ivory implant to a patient I present the facts as I have them from my own experience, explain the risks, the percentage of primary infection, secondary foreign body reaction, etc., so that there can be no misunderstanding. On the other hand when a costal implant is proposed one must with equal sincerity explain the necessity for an incision in the chest, the risk of primary infection in either or both wounds, the possibility of the cartilage curling or slipping because of a lateral tilt in the nose and the chances of absorption particularly of the columellar prop where it is used for the support of depressed nasal tip.

My present series of 65 cases yielded 85% successful takes. In examining the records carefully I find that there were 5 cases (7.7%) of infection (3 primary) which necessitated removal of the implant. Analyzing this group I discovered that two of them were due to the grossest kind of contributory negligence. One patient left the Infirmary on the fourth postoperative day in excellent condition and walked a distance of three miles when the temperature was 14 below zero. As a result his nose was frozen and the ivory had to be removed. In another instance the patient had had the ivory in situ for over a year with no untoward symptoms, when he also was exposed to subzero weather for a long period with a resultant frozen nose and infection which necessitated the removal of the ivory. I must admit then, that extremely low temperatures will predispose the patient to frozen nose and I would therefore not advise the use of ivory in individuals who are compelled to spend much time out of doors in extremely cold weather unless they had the means of protecting the nose. This would apply particularly to policemen, firemen and truck drivers. And yet, I know of a milk-wagon driver as well as two chauffeurs who have carried their ivory implants for three to eight years with no untoward symptoms. Aside from the two frozen noses just recorded there were 3 other cases where the ivory had to be removed because of infection. Analyzing these cases I find that the infection manifested itself within 48 hours of the operation by swelling and redness of the nose, fever and headache and that in 2 of them the operation was performed in the dead of winter. This emphasizes again a fact with which most rhinologists are acquainted, namely, that there is always a greater risk of infection in any nose operation performed in bad weather. One can never be sure that the patient even when apparently free from infection may not be harboring pathogenic bacteria in the nasal passages

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or the throat which easily become activated as a result of trauma. I am firmly convinced that if I refused to do an ivory implant during the season of December to April I would eliminate practically all of the primary infections.

A second group of cases which deserve comment are those manifesting a foreign body reaction in the tissues some time after the operation

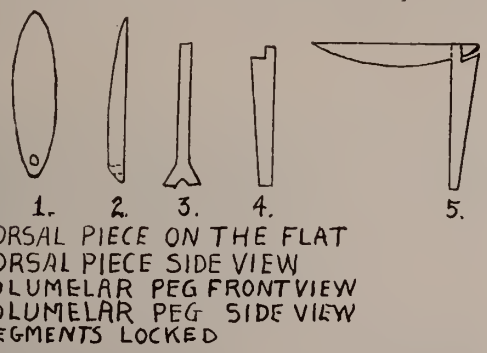


Fig. 1. Details of double ivory implant assembly.

of which there were 5 (7.7%) in my series. This condition manifests itself by a persistent redness of the skin overlying the implant and if sufficient time is allowed to elapse a fistula will form either near the extremity of the implant or within the vestibule. This fistula will discharge a thin lemon tinted secretion at intervals and will be followed by the appearance of a small granuloma at the orifice. The presence of these symptoms indicates an intolerance of the tissues to the foreign body which must then be removed. The question as to whether the ivory may be reinserted in such an individual has answered itself for me in at least three cases where the patient insisted on having the ivory replaced. This I did after allowing a sufficient lapse of time to permit a complete organization of the granulomatous lining in the fistulous tract. Since the same patient who developed a foreign body reaction at the first operation was later able to tolerate the ivory the question as to what factors determine this toleration or lack of toleration has become more of a mystery than ever. I have had the opportunity of removing ivory implants that have been successfully borne for several years (the patient being desirous of having the shape or size of the implant changed) and have been astonished to observe how firmly the ivory was imbedded. This has been particularly true of the columellar peg of the double implant which I shall describe later. In several instances the ivory was firmly encased in a bed of fibrous tissue and I found its extraction much more difficult than the primary insertion. In 4 cases the ivory was removed six months to three years after operation because the patient was not satisfied with the shape of the nose. In 3 of these cases differently shaped ivory implants were then inserted and retained without reaction. In the fourth case auricular cartilage was substituted for the ivory. In all of them the second operation was successful.

In no instance was I able to observe any gross alteration in the structure of the ivory after a definite sojourn in the tissues nor have I been able to find in the literature any mention of this possibility with the exception of a reference by Claus.[2] This author demonstrated several cases where x-ray pictures showed erosion of the implant which was later proven when the ivory was removed. I have the impression in view of the complete absence of this finding in my cases that Claus' bad results were due in large measure to the use of a poor quality of ivory. I have made



Fig. 2. (Left) X-ray picture of double ivory implants in situ.
Fig. 3. (Right) Single ivory post in place supporting the nasal tip. (See Fig. 4.)

it a rule to employ only clean fresh white natural ivory. One must reject the outermost layers of the tusk as well as samples that are in the least discolored or cracked.

As to foreign body reactions, it is my belief that the condition of the host as well as the preparation and method of introduction of the implant have a definite bearing on the incidence of this complication. Ivory should not be used for the correction of a syphilitic saddle nose nor in the presence of ozena, chronic suppurative sinu-

sitis nor in noses where the skin overlying the dorsum is not freely moveable. Also I have noted that ivory is not well borne in noses afflicted with acne or seborrhea.

As to the preparation of the implant one must be guided by the plaster model for size, always bearing in mind that the implant must be smaller than necessary to fill the defect in the model since allowance must be made for the thickness of the displaced skin. The implant must have no sharp edges and its surface should be carefully



Fig. 4. Case of hump, twisted nose and deviated septum. Corrected by sawing hump across, infracting nasal bones and resecting septum. Single ivory post to support the tip.

smoothed on a buffer before it is ready for sterilization.

When a double interlocking implant is used to raise the nasal tip one must be careful that the columellar post does not unduly stretch the tissues. Too much pressure at any point will unquestionably predispose to a foreign body reaction by interfering with the circulation of the overlying skin. Also in fitting the columellar post into the dorsal piece it is necessary to see that the hole which is drilled near the end of the latter is so placed as to receive the peg of the former at a natural angle for the particular nose in question. In most cases this angle is 90° but it can be varied according to the length of the nose and angle of the dorsum to the columella.

Much depends on the method of introduction. When a single dorsal piece is used I find that a half inch incision across the root of the nose gives the best results. This incision goes through the skin only which is then elevated by blunt dissection with long narrow scissors creating a subcutaneous pocket large enough to receive the implant without unduly stretching the skin. In order to be sure that one keeps in the midline it is best to stand behind the head of the recumbent patient throughout the whole procedure. When double implants are used it is best to make a median columellar incision from the tip down to the philtrum. This incision splits the columella and extends backward into the membranous septum, care being taken not to perforate the latter. Through this incision the tissues beneath the dorsal skin are opened by blunt dissection with spreading scissors. In order to be sure the implant will not slip off of the nasal bones it is well to make the upper extremity of the pocket just large enough to receive the tip of the implant.



Fig. 5.—Single dorsal ivory implant.

The rest of the pocket may be as wide as necessary to prevent tension of the skin. The lower end of the columellar incision which receives the expanded end of the ivory post must also be opened widely with the spreading scissors, care being taken to keep fairly close to the skin at the junction of the columella with the lip and to open the tissues down to the periosteum in front of the nasal spine. Under no circumstances should the periosteum be traumatized. When the columellar post is properly inserted it should be possible to slide the columella upward without displacing the ivory. When both pockets are ready the dorsal piece is inserted first and then the columellar

piece. The two are locked by having an assistant raise the dorsal piece with a single hook inserted in the hole while the operator holding the columellar piece with a pair of tissue forceps slides it along the curve of the hook until the peg slips into the hole. The hook is then removed and the wound is closed with interrupted silk sutures. These must be tied loosely to compensate for some postoperative swelling which would otherwise cause the sutures to cut into the skin. No dressings are applied. The wound is



Fig. 6. Double interlocking ivory implants to support the tip and level the dorsum.

covered with 1% yellow oxide of mercury ointment and cold compresses employed for 24 hours. The sutures are removed in 48 hours.

It is well to have two or three small files on the tray in case the implants should prove too large. Last minute reductions in size may be safely done if they are not too extensive, although I find that careful measurements in advance will obviate the necessity for such correction.

In answer to the question as to whether I restrict myself to ivory in all cases of dorsal depression let me say definitely "no." I use costal cartilage in the group mentioned above as being contraindications for ivory and I employ auricular cartilage for small defects. The technique for the former has best been described by Sheehan[3] in his latest book on Rhinoplasty and is worth reading. The technique of doing an auricular implant has not been described in any textbook with which I am familiar and therefore merits a few explanatory lines. Since the cartilage of the ear is rather thin one cannot expect it to be adequate for filling a large dorsal defect, but where the depression is slight it serves admirably. One may safely remove one or two strips of cartilage not exceeding an inch in length and a quarter inch in diameter without impairing the shape of the auricle. The incision is made along the back of the concha parallel to and about a quarter of an inch from the postauricular fold. The pericondrium will be found to be very adherent in this location and must be carefully peeled off by sharp dissection before incising the cartilage. The incision in the cartilage must also be done with delicacy lest one perforate the skin in the concha. It is well to have the pocket which is to receive the implant prepared before working on the ear and this is done through a vertical incision in the tip of the nose and dissection of the skin of the dorsum. I find this procedure much simpler than any intranasal incision because the pocket is strictly subcutaneous and the implant is introduced above the columnar cartilages which are in no way disturbed. After removing the strip of cartilage from the ear it should be examined to see that no perichondrium remains attached since this tissue will tend to curl the cartilage. If the cartilage bends slightly it should be nicked with a sharp scalpel to overcome this tendency. It is then inserted into the prepared pocket and the incision closed with two fine silk sutures which are removed in 48 hours. The auricular wound requires careful hemostasis since bleeding will tend to hematoma and possible infection. The wound is closed with a continuous silk suture and a thin roll of cotton saturated in collodion is placed over it so as to fill the postauricular fold. The auditory meatus is then blocked with cotton and the concha filled with a wad of cotton soaked in collodion. When the collodion dries it will be seen that the auricle is securely compressed between the two hardened cotton plugs. This insures complete approximation of the anterior and posterior skin of the concha. Fibrous tissue later develops in this region which makes the loss of the cartilage scarcely noticeable. The auricular dressings are not disturbed until the eighth day. They are then soaked off with ether, the suture is removed and the post auricular incision again covered with collodion cotton for another week.

25 E. Washington St.

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DISCUSSION

Dr. Harry Pollock, Chicago: Dr. Salinger, in his inimitable manner, has presented the subject so thoroughly, so completely, so clearly, that every thing is clear in the minds of the listeners, and there is very little new to add. However, I was greatly pleased as well as honored when I was asked to open this discussion, because about ten years ago when I presented a similar subject—namely, ivory implants in plastic surgery, he vociferously condemned the use of ivory, stating that it was and always will be a foreign body in the tissues, being a heterogeneous material, and would very often slough out. I am surely delighted to learn that experience has changed his ideas. While we have employed tibia, costal cartilage, ear cartilage in plastic surgery, I still am of the opinion that there is still a restricted use for these materials, but in far the larger number of cases, ivory is the implant of choice for the reasons enumerated by Dr. Salinger. Using cartilage, you are always dealing with a double operation and thereby necessarily incurring a double chance of infection. Occasionally the infection of the source of the implant may be quite disagreeable and serious, as in one case where we found ourselves dealing with an osteomyelitis of the sternum following a costal cartilage resection. If perchance your ivory implant wound becomes infected, the ivory is easily removed and at a later time can be reinserted without again resorting to a double operation.

Concerning the sliding or changing position of the ivory implant, I believe that this can be obviated by the method which I introduced, namely, perforating with small holes so that the resulting connective tissue can grow through these perforations and form firm bonds to hold them in position.

Now regarding foreign body reaction—I am not so confident that a small percentage of failures is due to that cause. Rather credit low grade infection or pressure necrosis as the causative factor. I do not believe that intolerance to ivory will cause such quick reactions as redness of the overlying skin and a fistula formation; rather let us believe it is due to a low grade infection or pressure necrosis. I agree with Dr. Salinger that it is often very difficult to remove implants, because my experience has shown that they are surrounded by a thick firm fibrosed capsule, so that after the ivory is removed the capsule will often support the tissue just as if the ivory were in place.

Regarding the statement that ivory should never be used in the presence of ozena, I certainly cannot substantiate that remark, and would suggest to the author that if he would cure the ozena first, by implants of ivory submucously, he then would be in a position to employ ivory in a patient who had had ozena, and who was now free of the disease or at least free of all symptoms of ozena.

All other statements in his paper regarding size of implants, preparation of pockets and particularly asepsis, I heartily agree with, and if these factors are carried out our results will be good and we will have many grateful patients, praying for us rather than paying us.

Dr. Walter Stevenson, Quincy: I wish to commend Dr. Salinger on his excellent presentation and to compliment him on the high percentage of good results he has had. Dr. Salinger has covered every detail of this problem so thoroughly, and it is all so much in conformity with the results of my limited experience, that there is little left to say.

Regardless of the fact that ivory is everlastingly a foreign body, even more so than autogenous implants such as cartilage and bone, experience has shown that unless undue trauma is experienced, ivory implants do remain permanently and they certainly do fulfill all the requirements necessary as substances to fill defects.

I wish to emphasize what Dr. Salinger has said, particularly regarding the great importance of absolute asepsis, and also that meticulous care must be given to the preparation of the implant. To those who consider this work child's play, I will suggest that they endeavor to fashion a round piece of ivory from a block of the same material. The work is tedious and time consuming. Often the completed product must be thrown away and a new one made. I have found in my few cases, fourteen in number, that I feel more comfortable if I have made more than one size of the same-shaped implant for each case. I was disappointed in one of my cases by having the implant decay, with subsequent extrusion. This was because I used a poor grade of ivory. It was fashioned from an old billiard ball. My Scotch ancestry seemed to have inspired me with the thought that I could easily and cheaply obtain all the material I wanted by using ivory billiard balls which were no longer serviceable for playing purposes. The constant impact on this old ivory evidently did something to its molecular composition. I now use the best quality of ivory obtainable.

I have been well pleased with my results, and thank Dr. Salinger for his inspirational work.

Dr. O. E. Fink, Danville: I do not see how any of us who are occasional operators can add anything of any particular value. I heard Dr. Salinger talk before a group in Chicago at the time he reported his first series, and at that time the results were good and now he reports a larger series with improvement in the results, and it seems the fellow who is only an occasional operator should limit his material to ivory implants. I think the larger your experience the more you develop a technic and refinements that you do not have in your early cases, and for that reason we who do not operate so often—our results are not so good.

Dr. Blair's talk this morning was very impressive. Of course he has had a vast experience. My impression was that his preference was for cartilage. I was glad to hear Dr. Salinger say he was reluctant to use it in syphilis or ozena, because it seems to me these are the type that come more often than any others for repair and the results have not been encouraging in that type of case. I believe, with the large number of

automobile cases and neglected care of nose injuries, that the time will come when we will be asked more often to repair these cases with implants of cartilage, autogenous bone, or ivory. I think if we use ivory implants we can save some discomfort for our patients, because I have had patients complain more of the pain at the site from which the transplant was taken, than in the operative field. So I feel that it would be to the patient's benefit at least to use ivory. The essayist did not say anything about tuberculosis of the nose, or whether he would use it in a case of tuberculous destruction of bone.

I think this will give us stimulus to further work, and that it will be of aid in the future. I feel that this is a very good paper and timely, because we are going to have more occasion to do such surgery in the future than at present.

Dr. H. L. Ford, Champaign: I would like to express my appreciation for this excellent paper. I would like to ask if Dr. Salinger feels that we invariably get absorption of the septal cartilage when used following submucous resection to fill in a small depression on the dorsum; I personally do not think so. I would also like to have his idea as to the value of the Maliniak procedure, that is, cutting the two lateral cartilages and fitting them back to back. Ferris Smith uses skin grafts with epithelial surface denuded, as an implantation for small dorsal depressions.

Dr. Samuel Salinger, Chicago (closing): Dr. Lederer remarked to me while Dr. Pollock was giving his discussion that Pollock is like an elephant, he never forgets! This idea of drilling holes in ivory in the hope that fibrous tissue will grow through is all the bunk. I know it is. When I had occasion to pull out one of these ivory pieces, I found no evidence of such a process. I think holes are a disadvantage. They weaken the implant, and they constitute pockets in which blood might accumulate and become infected. Then the theory was held that the fibrous band would also help to fill out the depression and this too I believe to be a fallacy. When I have had to take out an implant for reasons stated in the paper, the nose went back to its former state. I found the greatest reaction to ivory takes place in the columella. I would not use an ivory implant in a patient with ozena. The skin is thin, there is atrophy of the subcutaneous tissues and the skin overlies it very closely, so that when you separate it from the bone the circulation seems to suffer. At any rate, I have had more trouble in these cases than in any other type.

Dr. Stevenson mentioned his old billiard ball. That stuff is absolutely no good. It has lost something. Besides, you can get fresh young ivory very cheaply. The Brunswick-Balke-Collender Company practically throw away the outside of the tusks and will sell you all you can use for a dollar or so. When you get it, be sure not to use the outer dark layers of the tusk; use the inner part which is pure white. We cut it up with an ordinary jig saw into blocks of approximate size needed for the implant. We then grind the block on a hard stone until it is properly shaped and finish it off with a dental carborundum disc. I find the "Handee Grinder" which costs about $10, a valuable tool for this purpose.

Naturally I would not use ivory in a patient with tuberculosis of the nose. I have used septal cartilage to fill in a small defect and have had it succeed, when I can make an entirely separate pocket that does not communicate in any way with the septal incision or with the pocket between the flaps. I make a small incision through the tip of the nose, elevate subcutaneously and pass the cartilage into the pocket thus prepared. On the other hand, some of the worst infections I have ever seen, have been following the use of costal cartilage. The Maliniak procedure is very good. Split skin grafts have also been used as well as fascia lata. I think they are both very valuable for small defects if you care to use them.

MYXEDEMA HEART

V. THOMAS AUSTIN, M. D.
URBANA, ILLINOIS

The syndrome of "Myxedema Heart" was first described by Zondek in 1918.[1] He observed an enlargement of the heart, a sluggish heart action, and a uniform flattening or inversion of all the T waves of the electro-cardiogram. He and later Fahr[2] (1925) in this country reported an associated congestive failure which, though failing to respond to digitalis, was readily responsive to thyroid medication. They further observed an improvement in heart action, a decrease in the size of the heart and a reversion of the electrocardiogram to normal.

Since that time there has been an active interest in this rather unusual form of heart disease. Several noteworthy clinical studies have been made,[3-8] from which one might conclude that cardiac dilatation with the electrocardiographic changes are fairly constant findings in severe myxedema. On the other hand frank congestive failure has been observed much less commonly, and its relative frequency has been the basis for considerable controversy. A possible explanation for at least part of this difference of opinion would seem to lie in the varied interpretation of those signs which might be attributed to either early congestive failure or myxedema per se,—that is slight dypsnea and edema of the ankles.

However, in the majority of cases of myxedema heart, congestive failure, if present, is mild. A reasonable explanation for this lies in the fact that the low level of activity in myxedema pre-

Division of Medicine, Carle Hospital Clinic.

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vents the cardiac dilatation and weakness from making themselves more evident.

There is need for further study of the pathology in this condition. The enlargement of the heart is due principally to dilatation, though myxedematous infiltration of the heart muscle may account for some increase in bulk, and pericardial effusion has been known to increase the area of percussion dullness and the size of the roentegen shadow of the heart in myxedema.[9, 10] Coronary sclerosis occurs frequently and is no doubt responsible for some cases of heart failure.



Fig. 1. Photographs of the patient before and after administration of thyroid substance.

Generalized arteriosclerosis is likewise common, and Higgins[11] has called attention to the invariable hypercholesteremia as of etiologic significance. A similar disturbance in cholesterol metabolism is observed in diabetes mellitus, and here also arteriosclerosis is common.

The treatment of myxedema heart consists simply in the administration of thyroid substance, digitalis being quite ineffective. However, caution must be exercised in the elevation of the metabolism as the increased blood flow through narrowed coronary arteries may precipitate attacks of angina pectoris; and death has been known to occur.

The following case presents some unusual features of myxedema heart.

Case Report. The patient, a white female, aged 59 years, was first seen on a house visit October 11, 1936. A history was obtained of sudden onset of vertigo, faintness and weakness of a rather severe degree. The immediate picture was one of shock with marked pallor, cold moist extremities, shallow rapid respirations, a pulse rate of 170 per minute and a blood pressure of 90 systolic and 40 diastolic. Caffein sodium benzoate was administered hypodermically. Within a short time the tachycardia gave way to an auricular fibrillation with a precordial rate of 115 per minute. The extremities gradually became warm and dry and the color improved. The patient was seen again five hours later at which time she was resting comfortably but the heart was still fibrillating. The following morning the patient seemed quite recovered from her acute embarrassment and the pulse was regular with a rate of 60 beats per minute. She was advised to come in for further investigation.

She was again seen on October 15. The family history was irrelevant. There was no history of rheumatic fever, chorea or tonsillitis. The menopause had been uneventful at forty-seven years of age. Over a period of several years there had been a gradual development of cold intolerance, sallow color and dry scaly skin. The weight had remained constant at approximately 111 pounds.

During the past four years the patient had experienced three episodes comparable to, but less severe than that observed on the first visit. Each attack had lasted less than twenty-four hours during which time she had had medical attention and diagnoses of heart attacks. There was no interval history of congestive failure except for very slight dyspnea an exertion. There had been, however, a gradual development of increasing exhaustibility although the patient continued to take care of her house work. Physical examination at this time revealed a rather poorly nourished white female with an apparent age of sixty-five years. The skin was sallow, thick, dry and scaly, particularly on the dorsal aspects of the forearms. There was a definite puffiness about the eyes and a rather dull expression. She was mentally alert. The blood pressure

showed a systolic of 110 and diastolic of 60 mm. of mercury. The pulse rate was 56 per minute. The lungs were clear. The heart was definitely enlarged. The heart tones were rather distant and regular. No murmurs were audible. The liver edge was at the costal margin. There was no dependent edema. The ankle jerks had the typical myxedema character. There was a ptosis grade I of the right upper lid. The fundus examination was essentially negative.

The urinalysis was entirely negative. The hemoglobin measured 80%. The erythrocytes numbered 4,000,000 and the leucocytes 6,700 per cu. mm. The differential count showed 35.5% lymphocytes, 4.5% monocytes, 53.5% neutrophiles, 1.5% eosinophiles and 1% basophiles. The serologic test for syphilis was negative. The blood urea measured 48 mg. %. The phenolsulphonephthalein kidney function test showed a total excretion of 70% in one hour. The basal metabolic rate was minus 28%. The teleoroentgenogram showed a transverse diameter of the heart of 18.5 cm. with an internal diameter of the thorax of 28 cm. The electrocardiogram showed a rate of 46 per minute with extremely low voltage and isoelectric T waves in all leads (see Fig. 3).

On October 20 the patient was started on 1 grain of desiccated thyroid daily. On October 23 the dose was increased to 2 grains daily. The patient experienced no intolerance to the thyroid substance and on October 26 the dose was increased to 2.5 grains daily. There was a gradual and definite response clinically to specific therapy. The pulse rate increased to 76 and the blood pressure to 138 systolic and 72 diastolic in one month. During this time the weight was reduced to 99.5 pounds. The patient observed increased warmth of her skin which became soft and of normal texture. She experienced an increased vitality and endurance. There have been no recurrences of the auricular fibrillation, and under treatment she has developed no angina pectoris or other signs of coronary disease. The accompanying photographs, taken shortly after the onset of treatment and two months later, show clearly the change in facial expression resulting from thyroid medication. (See Fig. 1.)

Interval basal metabolic rates, electrocardiograms and teleoroentgenograms were observed over a period of eighteen weeks. A continued reduction in the size of the heart and reversion of the electrocardiogram to normal extended over this entire period. These factors are recorded in Fig. 4.

Discussion. It is unfortunate that an electrocardiogram was not available at the time of the first visit; but the episode of absolute irregularity of the heart and vascular collapse warrants a clinical diagnosis of paroxysmal auricular fibrillation. Its relationship to the myxedema heart is interesting. There have been no recurrences under treatment, and thyroid medication has failed to demonstrate any significant coronary disease which might be held responsible. It is suggested as a complication of myxedema heart, though the possibility of its being a coincidental finding is recognized. So far as I know, only three cases of auricular fibrillation occurring in myxedema heart have been previously reported. Walker's[12] case had a persistent auricular fibrillation known to exist eleven years before the diagnosis of myxedema heart, and thyroid medi-



Fig. 2. Teleroentgenograms before and 18 weeks after onset of thyroid medication showing 4.5 cm. reduction in transverse diameter of heart.

cation had no effect on the irregularity. A second case was given in a series reported by Ohler and Abrahamson,[3] and various abnormalities of rhythm persisted on thyroid treatment. The third case was reported by Grant[13] in which thyroid therapy corrected the auricular fibrillation, but the persistence of an intraventricular block suggested the co-existence of coronary sclerosis.

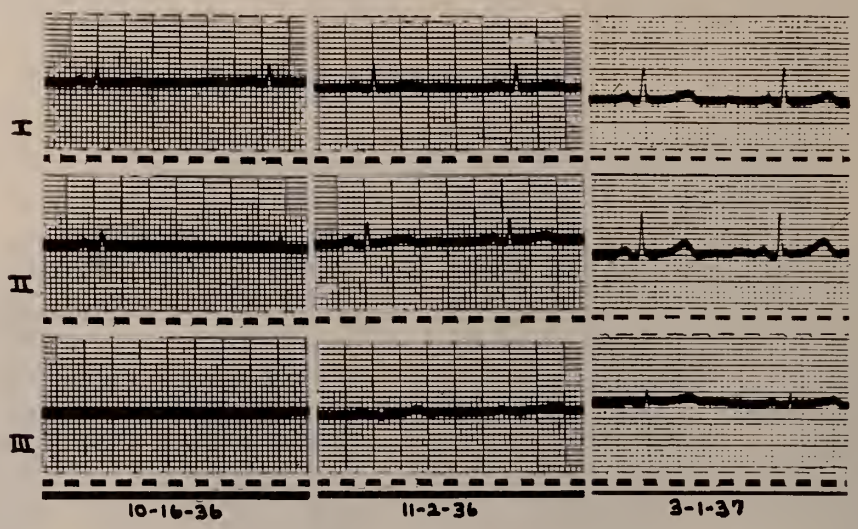


Fig. 3. Changing electrocardiograms under specific therapy of myxedema.

CONCLUSION

1. A case is presented showing typical changes of myxedema heart and a return to normal under thyroid medication.

2. Congestive failure was not an evident complication.

3. Auricular fibrillation as a complication of myxedema heart is suggested by this case, though, as in previously reported cases, it is not possible to exclude the existence of an associated coronary sclerosis as a factor in its production.

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DISCUSSION

Dr. Frank Deneen, Bloomington: This case is unusual especially because of the increased pulse pressure that he had before thyroid medication. Hyperthyroidism is frequently spoken of as being a condition of fatigue. I think the fatigue is an end-result of hypertonicity. When the patient gets up in the morning he is not fatigued but after he is up and around with increased metabolism the tiredness increases. In myxedema of this type, which is so frequently spoken of as being a state of fatigue I think the heart is atonic and under thyroid treatment, when there is more activity on the part of the heart muscle with increased pulse pressure, these patients do not tire. They are purely cases of an atonic state. After thyroid medication these patients perform both increased physical and mental work without development of any fatigue whatever.

I think there is one thing that should be spoken of and that is the low basal metabolic rate. A low metabolic rate in itself should not be considered hypothyroidism. There is a large group of patients who normally run a low rate. Just the same, we have a large number of toxic thyroids with low basal rates, giving

them thyroid on the basal metabolic rate alone is very dangerous.

I think it is very interesting to follow these cases of cardiac sluggishness with or without myxedema and find the wonderful improvement they make, and how many of them apparently develop a normal restoration of thyroid function, at least partially, so that in a short space of time they get along with less and less thyroid and sometimes get along without any at all.

The changes in the electrocardiogram are interesting and those of us who have followed them are amazed at the changes that take place.

I want to say that Dr. Austin has presented the case very well. It should be instructive for all of us from the standpoint of studying not only the lack of thyroid but increased thyroid secretion and its function.

Dr. Willard O. Thompson, Chicago: There are two entirely different types of response of the heart to thyroid treatment in patients with myxedema, which I can illustrate very well by describing two patients recently seen in the County Hospital. One entered with decompensation, cyanosis and a large heart. Although she appeared typically myxedematous her basal metabolic rate was only 20% below normal. With digitalis the decompensation did not disappear but when a large dose of thyroid was given, which ordinarily causes a considerable amount of strain on the heart, it did clear up. The other patient presented a different picture. She was typically myxedematous with a basal metabolis rate 40% below normal. A single dose of thyroid containing 1.63 mgm. of iodine was given and the response was characteristic and without any ill effect. Her myxedema cleared up in typical fashion and no cardiac embarrassment resulted. After the effect of this dose had disappeared, her metabolism was again raised toward the normal, this time with a larger total dose of thyroid given in equal portions every day. After she had had ten doses, a total of 5 mgm. of iodine, the patient developed severe precordial pain with fewer and leukocytosis and suffered from a characteristic attack of coronary thrombosis. Thyroid was stopped immediately and the patient had a rather severe time of it for a long period. Her cardiac embarrassment cleared up very slowly as she gradually became myxedematous again, and we then tried to give her more thyroid in small doses but her heart was unable to stand the increased work placed upon it. We were thus faced with a dilemma. The heart, because of its myxedematous condition, was inefficient and yet, because of the damage resulting from coronary thrombosis, was unable to meet the increased demands placed upon it by the very thing necessary to change it.

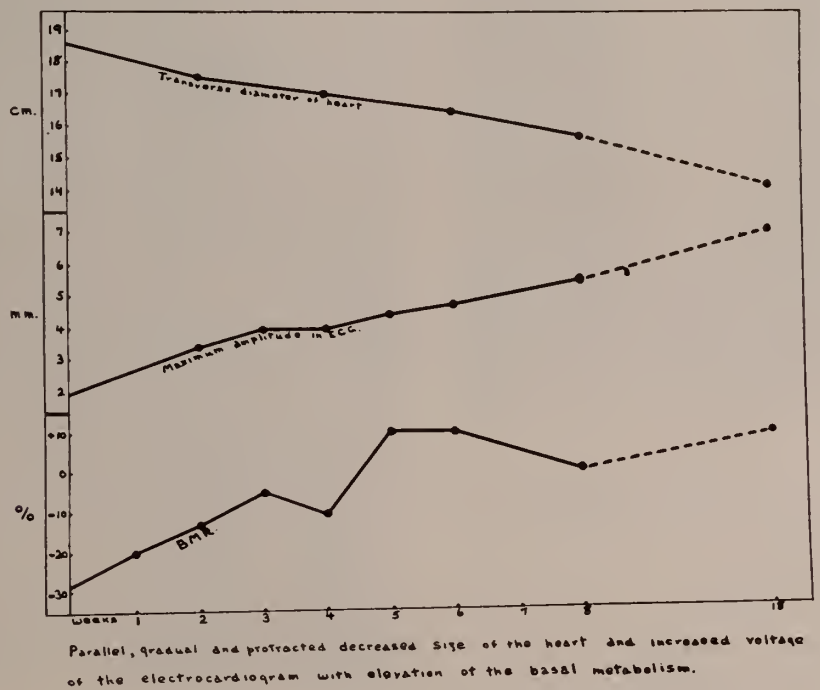


Fig. 4. Interval findings of myxedema heart under treatment.

Dr. V. Thomas Austin, Urbana: Apropos of the discussion: There is one thing we should all remember: myxedema is a clinical and not a laboratory diagnosis. It is possible to have a low metabolic rate without myxedema and conversely myxedema is sometimes observed with rates not greatly lowered. Myxedema should be considered in the differential diagnosis of all markedly enlarged hearts. There is no heart condition in which response to therapy is more gratifying. In closing, caution should be exercised in every case under treatment because of the fact that coronary sclerosis is a common complication and occlusion is prone to occur.

GROWTH DEFORMITIES RESULTING FROM OSTEOMYELITIS

JOHN A. SIEGLING, M. D.
URBANA, ILLINOIS

It was formerly thought that the occurrence of deformity in osteomyelitis due to involvement of the epiphyseal cartilage was relatively infrequent. Recently there have been several reports[1, 2] showing a high incidence of partial or complete arrestment of longitudinal growth of long bones. It was decided to review the cases of osteomyelitis seen at the University of Chicago Clinics to determine the incidence of growth arrest here.

To understand properly the production of osteomyelitic growth deformity, it is perhaps wise to review briefly the physiology of bone growth. Stephen Hales[6] and later John Hunter[7] demonstrated experimentally and Ollier[8] clinically, that bones grow at their ends and that there is no interstitial growth. Other investigators[3, 4, 5] have subsequently confirmed this work with additions. Haas[9] demonstrated experimentally that the most important elements for longitudinal growth were located in the columns of cartilage cells in the epiphyseal plate, and that destruction of these cells resulted in growth arrest with asymmetry and shortening.

Of the cases reviewed at this Clinic, some were acute, some chronic, and some presented old deformity. The findings are recorded in the accompanying table.

TABLE I

Total cases of osteomyelitis reviewed	423
Total cases in children	277
Total cases in children with long bone involvement	241
Total number of patients having overgrowth (4.9%)	12
Total number of patients with growth arrest (31.5%)	76
Total long bone lesions in the 241 children	419
Total bones having growth arrest (24.5%)	103
Total bones having overgrowth	13

It will be noted that the incidence of interference with growth is rather high. In some of the cases the possibility of subsequent deformity had apparently not been suggested and in others no attempt had been made to minimize deformity before the patients were seen at this Clinic. It would seem that more emphasis on this subject of arrest would be justified in text-books, many of which scarcely mention it.

The growth deformities of greatest significance were either shortening of an extremity due to complete arrest of growth, or deformity resulting from arrest of one part of an epiphysis with



Fig. 1. Knee joint of a child illustrating transverse lines (a) resulting from administration of phosphorized cod liver oil. The distance from these lines to the epiphyseal lines progressively increases as new bone is added at the metaphyses. Note that the distal end of the femur grows faster than the proximal end of the tibia.

continuation of growth of the remainder. Another interesting irregularity was overgrowth of an osteomyelitic extremity due to stimulation of growth by the infection. As will be noted in Table I, twelve patients had longitudinal overgrowth of a bone. In no instance was this sufficient to make a raised shoe necessary and no case showed unequal overgrowth of only part of a

From the Division of Orthopedic Surgery, The Department of Surgery, The University of Chicago.

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bone. Thus overgrowth is interesting but not of very great importance as a truly deforming factor.

Seventy-nine of the one hundred and three growth arresting lesions were septic hips with osteomyelitis involving the capital epiphysis. This contributes materially to the high percentage of growth arresting lesions. Growth arrest in these cases was almost invariable, though a few escaped by fusion of the capital epiphysis alone to the acetabulum with continuation of growth at the epiphyseal cartilage.

In any case of osteomyelitis which threatens the growth disc it is of extreme importance to point out to the parents the possibility of deformity and to have adequate follow-up x-ray and clinical examinations. Where one is suspicious of growth arrest, it is always best to compare the suspected epiphysis with its mate and to look for evidence of closure of the epiphyseal cartilage line on the roentgenogram. The configuration of the line should be observed closely and any deviation from its normal position perpendicular to the diaphysis should be noted. Irregularity of epiphyseal line and deviation from the perpendicular when compared with the normal corresponding epiphysis are presumptive evidence of arrest.

Very often an x-ray taken sometime after a surgical procedure on a child with osteomyelitis demonstrates a linear shadow at a variable distance from the epiphyseal line. Similarly, administration of phosphorized cod liver oil at the time of hospitalization for osteomyelitis results in a radio-opaque line. (Fig. 1.) These lines are clinically significant for by measuring their distances from the epiphyseal lines, we are able not only to determine whether or not growth is taking place, but whether it is occurring equally from all sides of the epiphyseal plate. In some instances of partial arrest the distance is observed to increase on one side while on the other side the growth arrest or phosphorus line angles down to the epiphyseal line, indicating that arrest of longitudinal growth has occurred on that side.

The majority of osteomyelitic lesions occurring in children seem to be on the diaphyseal side

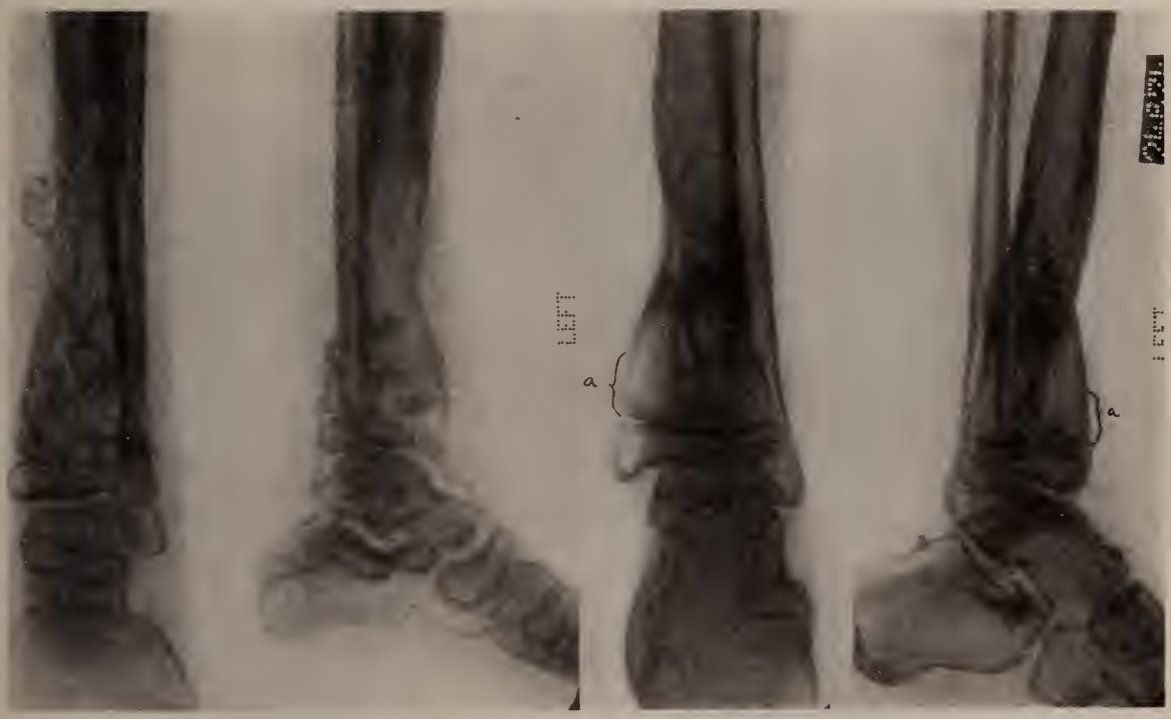


Fig. 2a. Osteomyelitis inolving the distal end of the tibia. Note that the infection has crossed the epiphyseal line and destroyed a portion of the epiphysis itself.

Fig. 2b, c. Same as 2a one year and seven months later. Note that the epiphyseal line is open and perpendicular to the axis of the shaft. About ¾ of an inch of new bone (a) has been added and the healed focus has become more distant from the epiphyseal line, indicating that growth arrest has not occurred.

of the epiphyseal cartilage. This is attributed to the fact that the blood supply at this site consists of terminal arteries in which infective emboli lodge and multiply.

In many cases in this series the epiphyseal cartilage plate seemed to act as a limiting body, and as infection cleared, the lesion grew away from the epiphysis. In several instances, although infection penetrated the cartilage into the epiphysis, arrestment of longitudinal growth did not occur. (Fig. 2.) This is a surprising fact and one that serves to complicate the prognosis.

When growth arrest does occur the ultimate deformity depends upon the age at which the arrest occurred and the rapidity of growth of the particular epiphysis involved. Arrest of the proximal humeral epiphysis is relatively unimportant except in consideration of cosmesis, and there can be considerable inequality of humeral length without conspicuous deformity or loss of function. On the other hand, arrest of the distal ulnar or radial epiphysis may produce not only deformity in the way of ulnar or radial deviation, but also loss of function. Similarly, arrest of the distal tibial or fibular epiphysis may produce inversion or eversion of the foot. (Fig. 3.) Compensation for inequality of femoral length is taken care of to a considerable extent by pelvic tilt but if the difference is moderate, limp is evident and static changes occur in consequence.



Fig. 3. a. Old varus deformity of ankle due to partial arrest of tibial epiphysis during childhood. Extremity is 1 inch short. Note angulation of weight bearing surface of joint. b. Postoperative appearance one year and two months after ostectomy. The deformity is corrected and joint mechanics improved.

Early recognition of growth arrest is of great importance. Where progressive inequality of leg length is occurring, surgical arrest[10] of growth of the corresponding epiphysis on the other extremity will prevent further discrepancy. Where shortening is considerable, surgical fusion of several of the epiphyses of the normal extremity at the proper time will allow equalization of leg length by the end of the growth period. By utilizing this procedure, we are able to prevent inequality of length which might later require the

more formidable procedure of leg lengthening or shortening.

It is particularly desirable to stress that the integrity of the epiphysis is vital to normal longitudinal growth. In the surgical approach to an osteomyelitic focus at or near the epiphyseal plate one should use every caution not to strip periosteum from the cartilage. The ostectomy should be started at a safe distance from the epiphysis and directed toward the lesion. (Fig. 4.) Curettage in the depths of the focus should be avoided. Speed[11] has suggested simply wiping out the granulations and we have found this method very satisfactory.



Fig. 4. a. Osteomyelitic focus in metaphysis. b. Surgical approach avoiding epiphyseal line. c. Same knee 1 yr. and 7 mo. later. Note growth lines a and b indicating that longitudinal growth has been uninterrupted.

CONCLUSIONS

1. It is apparent from this series of cases of osteomyelitis that lesions involving the growth cartilage in long bones can and do cause varying degrees of arrest of longitudinal growth.

2. Whether or not any individual lesion will cause arrest and deformity is not always predictable.

3. The possibility of growth arrest in such lesions should be kept in mind and explained to the parents.

4. Surgical approach to the epiphyses should be made with extreme caution.

5. Repeated clinical and roentgenographic examinations should be made, so that methods can be instituted at the proper time to prevent progressive deformity.

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THE DIAGNOSIS OF BRONCHOGENIC CARCINOMA: ROENTGEN ASPECTS

A. Hartung, M. D. and T. J. Wachowski, M. D.

CHICAGO

Bronchogenic carcinomas occur with sufficient frequency to warrant the rather extensive reference to them in the literature within recent years. Roentgenologic and bronchoscopic examinations play a major role in their detection. Usually when cases come under observation, the pathological changes are sufficiently advanced to give roentgen findings; these may be suggestive but frequently they are not conclusive and other data are essential to definitely establish the diagnosis. Although numerous cases of undoubted bronchogenic carcinoma other than these which served as the basis for this paper have been seen by us, we have limited our discussion to proved cases. Our object is to correlate the roentgenologic with the pathologic changes with a view towards ascertaining how much reliance can be placed upon the purely objective findings noted in arriving at a diagnosis.

The incidence of bronchogenic carcinoma has risen sharply in the past century. Stokes[1] sounded the warning in 1837, stating that his experience in lung tumors was by no means as rare in England and Ireland as was generally assumed. Boyd,[2] about the same time, went so far as to say that primary lung cancer was more common than secondary. Adler,[3] in 1912, thought Boyd was exaggerating, believing that "while lung cancers were no longer rare, they still belong to the class of rarer neoplasms." Nevertheless, whereas Passler[4] found only 74 cases of undoubted primary cancer of the lung in 1896, Adler considered the evidence of malignancy indisputable in 374 cases up to 1912. The recent large series reported from individual institutions[5, 6, 7] indicate the increased number now being diagnosed. Bronchogenic carcinomas now constitute 6 to 8% of all carcinomas, being second only to gastrointestinal malignancies in frequency.[8] Part of the recent increase in incidence is undoubtedly due to the more frequent use of the roentgen ray and bronchoscope. That many lung carcinomas were previously misdiagnosed is well illustrated by the Joachimstal incident. Repeated inquiries as to the incidence of lung cancer amongst the miners of that town elicited negative answers. However, when two lung cancer minded physicians did 13 post mortem examinations within one year, 1929-30, they found nine cases. The fact that more individuals at present live to an age when a cancer is especially apt to develop is probably another reason for the increased incidence.

Carcinoma of the lung is primarily a disease of later life. Although Beasley[10] recorded a case in an infant of 16 months and many persons attain the age of 70 years or more before developing the malady, most of the cases occur between the ages of 40 and 60. Thus far, definite etiological factors have not been demonstrated. Heredity, so far as is known, plays little or no role. Bela,[11] in 1910, thought influences of occupation or trade might be contributing factors. The disproportionate incidence of cancers in miners of certain ores, chimney sweeps and aniline and paraffin workers tends to indicate the truth of this assumption. Recently, Rosedale and McKay[12] noted that 75.4% of their patients were employed in occupations requiring exposure to dust or other irritating atmospheric factors. They thought the chronic bronchial irritation might lead to protoplasia and metaplasia. Arkin and Wagner[8] obtained a history of addiction to smoking in 90% of their cases and believed that this might constitute an irritation factor. The role of chronic bronchial infections, influenza and pneumonia, is uncertain. It has been shown[13, 14] that a metaplasia of the basal layers of the epithelium occurs in influenza and Ewing[15] calls attention to the change of alveolar epithelium to a cuboidal form which has been described in atelectatic foci. While the dictum of Rokitansky that tuberculosis and carcinoma were incompatible has been definitely disproven, the evidence does not support those who, like

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Ewing, place tuberculosis foremost as an etiologic factor. Recent reports show tuberculosis in only an incidental percentage of cases. Fried[16] believes the role of tar, especially in road pavements, is eliminated by the concurrent increase noted in Russia, where the tar factor is not present. Automobile fumes as a causative agent can be eliminated on the same grounds.

Histologically, Geschickter and Denison[17] divided their cases into two rough groups—the squamous cell type and the adenocarcinoma. On embryological and histological considerations, they considered the lung root regions and the terminal ramifications of the peripheral bronchioles as the most likely sites for metaplastic changes. They believed that squamous cell lesions were more apt to occur at the hilum and adenocarcinomas at the periphery, and they were able to fit most of their material into that scheme. Some of their cases, however, had equally prominent epidermoid features and adenomatous arrangement and could not be definitely classified into either group. Other writers[12] were unable to make their material fit into this simple classification. Arkin and Wagner[8] believe most bronchogenic carcinomas originate from the less differentiated multipotential cells of the basal layer, these giving rise to the squamous cell and the undifferentiated round or spindle cell lesions, while the epithelium of the mucus secreting glands of the bronchi give rise to the adenocarcinomas. This enormous plasticity of the epithelium has led to various opinions as to type and origin of tumors. Rosedale and MacKay[12] found round or spindle cells in all their cases and considered them the primal or parent cells of the bronchial epithelium. Geschickter and Denison[17] record a case where the primary lesion was adenocuboidal while the bone metastases were squamous cell in type.

Sante[18] states that carcinomas originating from the bronchi appear only in the hilar lesions. They may show 1. a diffuse growth from a focus on the superficial epithelium of a bronchus or 2. a nodular growth when the lesion originates from the mucous gland epithelium of the deeper epithelial layers. Both types of hilar carcinoma are prone to induce secondary pathology early. They both tend to occlude the bronchus, predisposing to infection and abscess or causing atelectasis, or both. In addition, the nodular type tends to early central degeneration and excavation. According to the same author,[18] the peripheral type is described as a primary alveolar carcinoma, an opinion which is strongly attacked by many.[8, 16, 17] Whether the alveoli are lined with epithelium, as claimed by MacCallum and Ewing,[15] or with mesothelium, as claimed by Fried[16] and accepted by Geschickter,[17] thus shifting the origin of the peripheral tumor from the alveoli to the terminal bronchiole, it is generally recognized that the peripheral carcinoma develops into either a single diffuse or a multiple nodular lesion.

The single diffuse type starts as a small patch of consolidation in the parenchyma and spreads with a feathery infiltrating border. Progressing by way of the lymphatics and bronchi to involve an entire lobe or lung, it pays scant regard to interlobar septa or other natural barriers. Until complete consolidation of the entire lung occurs, there is no indication of mediastinal displacement or of enlargement of the chest cavity. Further growth initiates pressure effects but atelectasis is rarely seen. There may or may not be central necrosis.

The multiple nodular type begins as many poorly defined nodules in one or both lungs. These are usually small at first, grow in size and may coalesce to form large irregular masses. They exhibit a more marked tendency to break down than do the diffuse types and are more prone to metastasize. Some workers have had difficulty in differentiating this form grossly at the autopsy table and at times the malignancy was not very obvious in the microscopic picture despite the presence of grossly and histologically characteristic metastases. This type of lesion, frequently referred to as miliary or multiple primary lung malignancy, seems so improbable of occurrence on the basis of what is known of malignancies in other organs, that one cannot help but wonder whether it is not a metastatic carcinosis arising from a very small primary site, a not uncommon occurrence elsewhere in the body.

Metastasis is common in bronchogenic carcinoma, the peripherally located lesions apparently being more apt to spread. Distribution of the metastases may occur 1. by way of the bronchi producing a bronchopneumonic configuration; 2. by way of the lymphatics to the lymph nodes,

giving the orthodox localized masses, especially near the hilus, or causing a carcinomatous lymphangitis which gives a rather characteristic roentgenological and histological appearance; and 3. by way of the blood stream. Although only a relatively small number of sites of metastases are recognized ante-mortem, a rather diffuse generalization is found during a careful post mortem examination.[12] The drainage of the venous return of the lung into the left side of the heart, from whence it passes into the major circulation, may play a role in this spread. Common sites of metastases are the osseous system, brain and adrenals.

The duration of bronchogenic carcinoma is extremely variable. Graham[19] observed a case for seven years after the diagnosis was made and somewhat shorter survivals are listed by several authors. The average duration of life after diagnosis is rarely over 12 months, however, and the first symptom may be a fatal hemorrhage.

The symptoms and findings in bronchogenic carcinoma depend to a considerable degree upon the type of tumor, its location, and the presence or absence of metastases or associated pathology. They may be those of pulmonary disease or be centered elsewhere because of metastases. When the latter condition applies, the findings are characteristic of tumorous involvement of the organ affected, and the prognosis in these cases is practically hopeless. Cases presenting themselves with chiefly respiratory manifestations require particular diagnostic study because they may offer therapeutic possibilities. No particular symptom or group of symptoms can be called characteristic of bronchogenic carcinoma. Cough, with or without sputum, is the most common early symptom. Clerf[20] calls attention to the significance of an insidious cough associated with an expiratory wheeze, best heard during and at the end of expiration. The cough is persistent and progressive. The sputum, at first scanty and muco-purulent, often becomes copious and frankly purulent with the advent of infection. Occasional blood streaking is common early but frank hemorrhage is unusual and occurs late. Dyspnea is slight at first and increases as the disease progresses. Pain is usually associated with infection distal to the obstruction in the hilar lesions. However, pain and often local tenderness are relatively early symptoms in the peripheral lesions, although then they usually denote extension to the ribs and pleura. As the carcinoma progresses, there may be loss of weight, dysphagia, hoarseness, pupillary changes and engorgement of the veins of the head and neck, depending on the areas involved.

The absolute diagnosis of bronchogenic carcinoma on the basis of the roentgenogram is difficult or impossible. The probable diagnosis of such a condition, however, can be made in a large percentage of these cases if the condition is kept in mind. It has been estimated that 20 years ago only 5% of such cases were diagnosed in vivo; at present approximately 50% are so diagnosed correctly; perhaps 90% should be possible of differentiation if all the available data and procedures are utilized.

Occasionally the lesion may be entirely intraluminal. In that instance, the film may be entirely negative, as in Kramer and Som's case.[21] In these cases bronchoscopy is of prime importance in the diagnosis. The intraluminal bulk of the tumor may cause bronchial occulusion with atelectasis, as in one of our cases. Usually, the carcinoma directly manifests itself as an increased density on the film. When the lesion presents itself in this fashion, it may assume a variety of appearances, depending on the type of lesion, its location, the stage of progression and the presence or absence of secondary pathology. The early hilar lesions appear as areas of marked density, with either sharply circumscribed or infiltrating borders. The localized type, usually adenocarcinoma, grows until it produces occlusion due to pressure. In this type, the entire lobe is apt to become atelectatic, giving a typical lobar density. Usually the tumor mass can be distinguished near the hilum, differentiating the condition from ordinary pneumonia. In the infiltrating type, usually a squamous cell lesion, there is more apt to be partial bronchial occlusion with infection distally. The presence of infection ushers in marked pneumonic densities, often with cavity formation, so that it may be difficult to exclude simple abscess. The localized lesions also tend to undergo central necrosis, simulating abscess cavities, and many of these patients have thoracotomies before the true nature of the pathology is suspected.

The peripheral lesion may present as single or multiple localized densities or as diffuse infil-

trating areas. The single localized areas are usually rather large when first seen, although involvement of the pleura with exudate formation or invasion of the ribs with destruction, producing pain, may bring the patient in when the primary lesion is quite small. The multiple localized lesions can hardly be distinguished from metastatic lesions ante mortem. The peripheral diffuse type of lesion appears as an area of density which often simulates pneumonia. Its lack of regard for the interlobar boundaries, however, should soon put it under suspicion, as should also the atypical clinical course.

Many cases of bronchogenic carcinoma present themselves when the findings are to a marked degree obscured by atelectasis or pleural exudate, or both. In these cases, the withdrawal of the fluid or induction of a pneumothorax is of extreme value in reaching a diagnosis. The intratracheal installation of iodized oil may also give valuable information, when bronchial obstruction is suspected or suggested by atelactasis or tumor formation. Occasionally a film made with the Potter-Bucky diaphragm will enable one to penetrate through an atelectasis and visualize the underlying tumor. Artificial pneumothorax will enable one to differentiate a parenchymal from a pleural or thoracic tumor. This procedure is of particular value in indicating to the thoracic surgeon the presence or extent of adhesions, findings of considerable prognostic value when surgical extirpation is considered. The extremely valuable role of bronchoscopy is omitted intentionally, since it will be covered by Dr. Paul Holinger in the next paper.

Accurate diagnosis is important for various reasons. It may prevent useless or even harmful therapeutic procedures based upon a mistaken diagnosis of a relatively benign condition. It has a direct bearing on prognosis and will determine in large measure the indications for treatment. Curative therapy admittedly is rather hopeless at the present time. Favorable results have been reported by bronchoscopic removal, fulguration and irradiation, but the number of five-year cures reported are comparatively few. Lobectomy and pneumonectomy seem to offer new therapeutic possibilities but, if these are to be realized, diagnosis will have to be made earlier than is usually done at present when most cases have already developed metastases.

In the differential diagnosis of bronchogenic carcinoma from the roentgen standpoint one must consider all other conditions which are capable of producing localized densities, atelectasis, or which predispose to fluid accumulations. The history is of the utmost value, since some of the conditions simulated on the film can be ruled out on that basis alone. Thus benign lung tumors can be recognized by their slow progress and paucity of symptoms. Occasionally neurofibroma or a pleural tumor may cause confusion. Both can be differentiated by the injection of air into the pleural cavity. Rib tumors and those arising from the thoracic wall can also be distinguished by the same procedure. Simple lung abscess usually has an acute onset with no preliminary symptoms but occasionally differentiation may be impossible without bronchoscopy, iodized oil injection, or even thoracotomy. Hilar enlargements due to Hodgkin's disease, lymphatic leukemia or lymphosarcoma may be observed to disappear with moderate doses of roentgen rays if other procedures have failed to make the diagnosis. Metastatic malignancy, showing the typical multiple rounded nodules, is usually rather characteristic and the primary lesion is ordinarily demonstrable. The ordinary aneurysm, with its frankly pulsating borders and tendency to erode rather than to invade bone, rarely causes much difficulty. The thrombotic solid aneurysm may be hard to diagnose, although the positive Wassermann and the very slow progression of the condition are indicative of a leutic lesion. Occasionally chronic fibroid phthisis may be diagnosed when the lesion is actually carcinomatous, or vice versa. The finding of tubercle bacilli and a long standing history is indicative of tuberculosis but the two diseases may be coincident. The atypical progress of the case or a positive bronchoscopic biopsy may be the only means of differentiation. Bronchiectasis, especially the localized unilateral type, perhaps following a sub-clinical pneumonia, may be exceedingly difficult to diagnose on the basis of history or roentgen findings. Bronchoscopy and iodized oil injection showing a patent bronchial lumen and dilatation of the bronchi are of great diagnostic value. Rigler[22] calls attention to the danger of the false positive diagnosis of bronchogenic carcinoma, citing the case of a woman to whom operation was recommended.

The patient refused and returned later for re-examination, at which time the lesion had entirely disappeared.

There have been 60 cases of bronchogenic carcinoma that have had both roentgen chest studies and a positive diagnosis by microscopy at the University of Illinois Research and Educational Hospitals during the past ten years. As previously stated, a few others were so diagnosed at necropsy but did not have chest films and many others were so diagnosed on the basis of history, clinical findings and the roentgenogram but were not included because of lack of microscopic proof. Of these 60 cases, 28 were diagnosed by section of tissue obtained through the bronchoscope, from metastatic glands, by means of the aspirating needle or from material coughed up by the patient; 32 of the cases came to autopsy. The roentgenograms of all cases were studied and the findings listed as to location, gross appearance of the primary lesion when unobscured, and the type of secondary pathology, when sufficiently prominent to be confusing. 27 of the lesions were central or hilar; 19 were peripheral or parenchymal; in 14 of the cases, the primary lesion could not be definitely identified objectively, although most of them then were possible of correct placement by inference. Of the visible primary lesions, 25 were described as infiltrating and 21 were nodular. It was found that this distinction was at times rather arbitrary, a beginning atelectasis secondary to a nodular lesion often giving the appearance of strand-like infiltrations, while a small area of atelectatic lung produced by an infiltrating tumor could be easily interpreted as a nodular mass. The presence of secondary pathology, such as infection, usually added immeasurably to the difficulty of visualizing and classifying the primary lesion. One of the cases showed a density corresponding to the right middle lobe and the findings were considered as consistent with a lobar pneumonia. At post mortem, a diffusely infiltrating peripheral carcinoma was found. Of the 14 cases where the primary lesion was entirely obscured by the secondary pathology, there was a massive pleural exudate in 2 cases; 9 cases showed an atelectasis of a single lobe of the lung; in 2 cases there was atelectasis of the entire lung on the side of the lesion. One case had both massive atelectasis and a considerable pleural exudate. A review was made of the diagnoses made at the time of the first examination. On all cases, there was available a short history and clinical findings provided by the referring physician, in addition to whatever additional information was obtained from the patient at the time of the routine fluoroscopic examination. It was found that in 39 cases the diagnosis of bronchogenic carcinoma was made, either alone or as the most probable of several possibilities. In 2 of the cases, no differential could be made, between aneurysm and carcinoma and between chronic tuberculosis and carcinoma, respectively. In 7 cases only objective findings were mentioned, the gross secondary pathology completely precluding any attempt at diagnosis of the underlying condition. In 12 of the cases, an erroneous diagnosis was offered. Of these, 3 were called lung abscess and pneumonitis, one osteogenic sarcoma of the rib, one carcinoma of the mid esophagus with extension to the lung, one lobar pneumonia, one chronic tuberculosis, one metastatic carcinoma, one advanced pulmonary tuberculosis, one pneumonitis, one pleural adhesions and fibrosis, and one was pronounced negative. It was interesting to note that with the possible exception of the one diagnosed sarcoma of the rib and the one called carcinoma of the esophagus, in which two cases the question of the more common occurrence might be raised, there was little reason to believe that any other diagnosis would be offered if the same films, accompanied by the same data, were to be reported again. This experience is not unusual and indicates that carcinoma of the lung may manifest itself in such a variety of appearances that one is apt to overlook it if not constantly mindful of it.

In conclusion it would appear that 65% of the cases studied presented roentgen appearances which were sufficiently characteristic to make a probable diagnosis of bronchogenic carcinoma. In 15% the roentgen findings were of such a nature that, although consistent with such a diagnosis, no definite conclusions could be drawn that this condition was actually present. The remaining 20% presented roentgenological evidences which were so equivocal that they suggested some lesion other than bronchogenic carcinoma. Improved interpretation with added knowledge should lessen the percentage of errors,

but earlier and more frequent roentgen examinations in obscure respiratory conditions occurring in individuals of the cancer age ought to result in its detection with greater accuracy, especially in its early stages.

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THE DIAGNOSIS OF BRONCHOGENIC CARCINOMA. BRONCHOSCOPIC ASPECTS

Paul H. Holinger, M. D.

CHICAGO

The bronchoscopic aspects of carcinoma of the bronchus consist essentially of the inspection of the tracheobronchial tree and the interpretation of the pathology which this direct examination reveals. Thus, the bronchoscope is used as a speculum in the same manner that an otologist uses an ear speculum. It is used to localize a lesion, determine its extent, and to secure tissue, through it, for biopsy.

Indications for bronchoscopy in those cases of definite roentgen findings are obvious. On the other hand, bronchoscopy should always be done in spite of a negative chest x-ray if symptoms of cough and hemoptysis suggest it. The possibility of tuberculosis in such cases should be excluded first by sputum examinations, in order to avoid unnecessary instrumentation. However, no matter how suggestive the findings may be, bronchoscopy should be included in the systematic study of the patient, because no diagnosis of malignancy is positive until proven so by biopsy. Classification of the lesion histologically is essential in choosing therapy, but no such classification is made at this time, because it lies outside the scope of this presentation and has been discussed fully by others. [1, 2, 3, 4]

Certain mechanical features of bronchial obstruction play so important a part in the clinical as well as bronchoscopic manifestations of bronchial neoplasm, that it might be well to review the three degrees of obstruction.[5]

If the lumen of a bronchus is partially constricted, either by an intrabronchial growth or by extrabronchial compression produced by a tumor, and air can pass the obstruction on inspiration and expiration, x-ray findings will be negative. On physical examination, however, a wheeze is heard at the open mouth and throughout the chest, loudest over the point of obstruction. As the tumor grows and the obstruction increases, air becomes trapped in that portion of the lung distal to the obstruction. This is due to a slight

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Research and Educational Hospital, University of Illinois, Chicago.

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increase in the diameter of the lumen of the bronchus on inspiration, which permits air to pass the obstruction. On expiration, the bronchial wall collapses around the tumor, making it impossible for air to leave that portion of the lung. This results in an obstructive emphysema.

The roentgen picture in such a case is negative if the film is taken, as most are, at deep inspiration. A film taken during complete expiration, however, shows a marked shift of the heart and mediastinal structures away from the side of the lesion, and a stationary depressed diaphragm on the affected side.

Complete bronchial obstruction by a tumor results in absorption of air beyond the obstruction and a collapsed lung. The heart and mediastinal structures shift toward the affected side, and the diaphragm is elevated. The opposite side shows, of course, a certain degree of compensatory emphysema.

The bronchoscopic picture in these various degrees of obstruction is fairly definite. In early lesions a small stream of blood may lead to the affected area, and tissues may be removed from its source. We always collect this blood with an aspirating tube. It is centrifuged, fixed, and sectioned, and occasionally establishes the diagnosis when the tumor itself is too small or too deep in the periphery to be reached with forceps. In peripheral lesions we may resort to the biplane fluoroscope to guide us to the tumor, using special forceps designed for use in the periphery of the lung.

More frequently, however, the bronchoscopic picture is that of a large, round, firm mass completely obstructing the lumen of one of the main bronchi. Tissue can easily be "teased" off this mass with forceps used for removing ball-bearings or beads from the air or food passages. The use of this forceps is preferred to the sharper cutting type of forceps because it causes less bleeding. Should the tumor be very firm, however, there is no contraindication to the use of the cutting or tissue-biopsy type of forceps.

The more advanced type of lesion is accompanied by copious-quantities of sanguino-purulent secretion. The bronchi are distorted, the walls irregular and freely bleeding, and the true obstruction is a friable mass. Large pieces of tissue can be removed for biopsy, and the patient relieved temporarily by aspiration of the putrid material beyond the obstruction. In these cases, however, there is a certain element of danger from hemorrhage, which must be kept in mind.[6] Occasionally at this stage there has been so much destruction of tissue that the picture is confused by profuse bleeding, pus and granulation tissue. Repeated bronchoscopies may be necessary to establish the diagnosis.

Beside actually inspecting the endobronchial tumor, noting its character, exact relationship to surrounding structures and its extent along a bronchial wall, there are certain features in the bronchoscopic appearance of the remainder of the tracheobronchial tree that are of great importance. Metastases to the mediastinal glands occur early in these malignancies. Enlargement of these glands is detected by a thickening at the division of the trachea. This area, the carina, is usually sharp, regular and freely movable. With mediastinal metastases, the carina becomes thickened, irregular and fixed. Should these findings be present, lobectomy or pneumonectomy is, of course, contraindicated.

Failure to obtain a positive biopsy in a deep left-sided lesion or an upper lobe lesion is frequently due to this rigidity which makes it impossible to expose the orifice involved. Similarly, if bronchial compression of a tumor collapses a bronchus proximal to the endobronchial lesion of that tumor, biopsy cannot be obtained without danger of penetrating pulmonary tissue. The deformity and rigidity are, of course, aids in making the clinical diagnosis of cancer, and add to the information gained from x-ray and physical examination.

The most important role of bronchoscopy in relation to bronchogenic carcinoma is in establishing the differential diagnosis. An inflammatory lesion, such as a lung abscess, is accompanied frequently by a marked proliferation of granulation tissue. Bronchoscopically removed tissue from this area is the only method of establishing whether the abscess is secondary to a carcinoma or is entirely inflammatory in character.

Tuberculosis is often most difficult to diagnose, especially in its incipient stage. At this time, the symptoms of cough, hemoptysis and loss of weight are sufficient to make the diagnosis of tuberculosis, in spite of a negative chest x-ray and in spite of the fact that repeated sputum examinations are negative for tubercle bacilli.

Bronchoscopically aspirated secretion may show the bacilli, but, what is more important, an early carcinoma may be discovered. It is only by making this differential diagnosis early that cases favorable for surgery can be discovered.

Benign tumors of the bronchus offer another problem in diagnosis which can be settled only by microscopic examination of the tissue. The bronchoscopic appearance of a benign lesion is frequently quite characteristic, but, as in dealing with any tumor, the gross appearance can be relied upon only in a certain small percentage of cases.

CONCLUSIONS

1. Inspection of the tracheobronchial tree should be carried out in all cases of obscure pulmonary pathology. The early diagnosis of bronchogenic carcinoma can be made only in this manner.

2. Symptoms of cough, wheeze and hemoptysis, in spite of a negative chest x-ray, are sufficient to indicate bronchoscopy if the sputum contains no tubercle bacilli.

3. No matter how positive preliminary findings may be, bronchoscopy is indicated in suspected pulmonary neoplasm to localize the lesion, determine its extent and to secure tissue for biopsy.

4. Neoplastic disease of the lung manifests itself in most cases by one of the types of bronchial obstruction. These types of obstruction are discussed, with the endoscopic picture of each.

5. Fixed mediastinal structures, together with a thickening at the bifurcation of the trachea, are indications of mediastinal metastases, and are in themselves diagnostic features of bronchogenic carcinoma.

6. Failure to obtain a biopsy is frequently due to this rigidity, to bronchial compression proximal to the endobronchial lesion, or to the fact that the lesion lies far in the periphery of the lung.

7. The differential diagnosis of many cases of pulmonary disease is dependent upon the bronchoscopic picture and upon the tissue removed for biopsy.

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DISCUSSION

Harry Olin, Chicago: I believe that in order to obtain a good appreciation of lung carcinoma it is desirable to study many post mortem records. I do not think any clinical condition in the body can cause so much confusion as carcinoma of the lung. A study of the autopsy record reveals some interestng facts about this condition. You learn that there are six avenues by which lung carcinoma can be recognized, and I thing the roentgenologist who is primarily a clinician will be more aided than otherwise by taking an interest clinically in this work, that he may interpret more intelligently the pathology that one sees in the films.

As to the local lesions, Dr. Wachowski described them so well and covered the ground so thoroughly I have very little to offer, but I do wish to mention the other avenues through which carcinoma of the lung may begin and these are distinct from the lung itself; for instance, through the lymph stream. In addition to a Hodgkin's you may get masses throughout the body, as in the upper arm, pressure on a nerve trunk and carcinoma of the lung ushered in as a brachial neuritis.

I had a very interesting experience with one of the cases where there were essentially no lung symptoms whatever, but the patient had excruciating pain down the right arm, and that is the way the lung carcinoma was called to the attention of the physician.

There is a third avenue by which lung carcinoma may usher itself through the blood stream. You may get a mass in any organ of the body. I saw a case recently which ushered itself in by a big mass in the abdomen, which was metastatic.

Another is a mass encroaching upon a nerve trunk and giving a clinical picture of neuritis. Then we have a group of cases which are ushered in by local metastatic lesions. For example, I saw a very well-to-do farmer who had a sciatica for three months. His pain was so severe he walked with considerable difficulty. He had few or no lung symptoms, but he had a great deal of bone destruction in the left wing of the pelvis and a portion of the sacrum. Upon investigation, we found the original tumor in the lung which proved to be carcinoma.

In the skeletal system, you may get metastasis; so in summing up in regard to carcinoma of the lung, look elsewhere for lesions which may be secondary to the primary lesion in the lung.

M. Pollak, Peoria, Ill: I was greatly interested in both papers because the subject under discussion is very important since lung carcinoma is on the increase. Lawrason Brown said, "It is easy to diagnosc tuber-

culosis if we only think of it." I think the same applies to carcinoma. We have to consider the fact that the x-ray appearance of cancer is not always uniform; in the same way the clinical course of cancer is not typical.

Last October we had a case, a man, aged fifty, who developed what his doctor thought pneumonia with the usual febrile course. When the fever disappeared, however, the x-ray picture remained about the same. Then a diagnosis was made of unresolved pneumonia. He had perhaps three times an acute febrile exacerbation. Finally he came to the clinic and we decided to do a bronchoscopy, and found a squamous cell carcinoma. He was sent to Dr. Graham who decided to do a pneumonectomy. When the chest was opened, he found quite extensive metastases in the mediastinal glands, involving the vena cava and decided not to proceed further. Two weeks afterward the man died and the findings were confirmed by post mortem.

I was glad to hear pointed out and emphasized the importance of sputum examinations. In every case of lung pathology when the amount of sputum is considerable and negative for tubercle bacilli, a bronchoscopy should be done.

In regard to tuberculosis, I think it is important to emphasize that if there is an extensive involvement in the lungs and negative sputum, we shall not be satisfied with a diagnosis of tuberculosis but conduct further studies, particlarly with the bronchoscope to clear up the diagnosis and then we will find cancer more often than we do at present.

Dr. Holinger (closing the discussion): In closing, I would like to point out again the aid the roentgenologist must give us in locating lesions which are deep in the lower lobe bronchi. These lesions lie beyond the point we can reach with a bronchoscope large enough to see through. Only by the use of the biplane fluoroscope can we be guided to a peripheral lesion. It is through this close cooperation of bronchoscopist and roentgenologist that we find the actual pathology in some of the very obscure cases.

RADIOGRAPHIC DIFFERENTIATION OF SILICOSIS AND ANTHRACOSIS

R. T. Pettit, M. D.
Chairman, Section on Radiology, Illinois State Medical Society
Ottawa, Illinois

In 1922 Aschoff, at the time Professor of Pathology at the University of Freiburg, Germany, called my attention to his work showing that tuberculous lesions in the lungs may be divided into two types—the *productive* type with a tendency to nodulation, consolidation and healing by fibrosis and the other or *exudative* type, a pneumonic process with a filling of the alveoli with exudate and cellular detritus. This exudative type is a much more acute disease process and its tendency is toward rapid progression, softening, caseation, cavity formation and death. There are, of course, between the two extremes of pure *nodular* or *productive* and pure *exudative* or *pneumonic,* many gradations and variations in degree of fibrosis, consolidation, caseation and cavitation; but almost without exception Aschoff found on the examination of many postmortem specimens, one or the other type predominated.

Graf and Kupferle of the Medical Department of the University of Freiburg, in conjunction with Aschoff translated these important pathological findings into terms of clinical medicine and roentgenology. They made radiographs of the chest immediately before death and then laboriously studied these radiographs in conjunction with the post mortem specimens, with the result that even with the inferior x-ray apparatus and technic of that time they were able to identify the two principal or predominant types of tuberculosis on the radiograph. Many specimens were studied; the characters of the densities on the x-ray plate were analyzed and based upon a study of these densities translated into terms of pathology it was possible to determine with a remarkable degree of accuracy the probable outcome or prognosis in any given case, because the productive or nodular type had a marked tendency toward fibrosis and healing, while the exudative type had a marked tendency toward softening, extension, cavitation and death.

On my return to America I undertook an analysis of their method at the Ottawa Tuberculosis Sanatorium (I was Medical Director of that Institution at that time) and in 68 cases, based upon the radiograph, classified the cases into productive or exudative, or if mixed, as most of them were, into predominately productive or predominately exudative, and upon these Roentgen findings I made a prognosis—stating on the patient's record that he would probably get well if of the productive type or that he would probably die if of the exudative type. These cases were followed for more than two years and I found that my prognosis had been correct 61 out of 68 times, 90% correct.

Read before Section on Radiology, Illinois State Medical Society, Peoria, May 19, 1937.

TABLE 1

Tuberculosis Clinical Prognosis Based Upon Roentgen Findings

PRODUCTIVE		EXUDATIVE	
INCIPIENT		INCIPIENT	
App. cured	5		
Arrested	2		
Improved	1		
Unimproved	0		
Died	0		
Cases	8	Cases	0
ADVANCED		ADVANCED	
App. cured	7	App. cured	0
Arrested	4	Arrested	1
Improved	1	Improved	1
Unimproved	0	Unimproved	1
Died	2	Died	2
Cases	14	Cases	5
FAR ADVANCED		FAR ADVANCED	
App. cured	3	App. Cured	0
Arrested	10	Arrested	0
Improved	5	Improved	1
Unimproved	0	Unimproved	1
Died	4	Died	17
Cases	22	Cases	19
TOTALS		TOTALS	
App. cured	15	App. cured	0
Arrested	16	Arrested	1
Improved	7	Improved	2
Unimproved	0	Unimproved	2
Died	6	Died	19
	44		24

Prognosis correct in 61 out of 68 cases.....90%

It is striking how different the outcome is in the two types of cases. Thirty-two out of 44 cases of the productive type were apparently cured or arrested and only one out of 24 cases of the exudative type apparently cured or arrested; six out of 44 productive cases died in two years, while 19 out of 24 of the exudative type died in the same length of time.

These findings have been confirmed by Francis Trudeau[1] as late as 1936, who says:

"In recent years there have come to be recognized two rather distinct types of lung shadows cast on the x-ray film, which have been interpreted as indicating equally distinctive underlying pathologic changes. The first of these has the appearance of soft, fluffy smoke, with very ill defined margins. It is felt that the disease casting this shadow is apt to be both recent and active. To this type of shadow the name 'exudative' has been applied. The other type referred to is indicative of the 'proliferative' lesion, which, it is felt, is of much longer duration and more fibrous in character. Here the appearance of the lesion on the film is much more clean cut and stringy, with margins well defined. * * * Results were indeed most enlightening, for we found that 220, or 91% of our 'proliferative' group had done well, whereas only 47 or 39% of our 133 'exudative' cases had made satisfactory progress. Hence the character of the shadow and its proper interpretation are of great value in determining the future course of the disease."

These studies of Trudeau confirm my findings presented before the Chicago Roentgen Society in 1925, 12 years ago.

Since 1928, I have also had an opportunity to make an extensive study of pulmonary silicosis. At Ottawa, Illinois, we have the largest



Fig. 1. Anthracosis and Bronchiestasis. Coal miner, aged 23 years. Case 463. A, radiograph during life. B, Gross specimen.

deposit of pure silica in the United States and this silica, either in its raw state or after cleaning, drying, grinding or other processing, is used in some 69 or 70 different industries. I have followed a number of employees in this silica industry with serial radiographs taken yearly over a period of eight years, and with improved technique and increased knowledge of this industrial hazard, quite definite characteristics have been noted on the Roentgen film, quite as individual as the productive or exudative densities found in the radiograph of pulmonary tuberculosis.

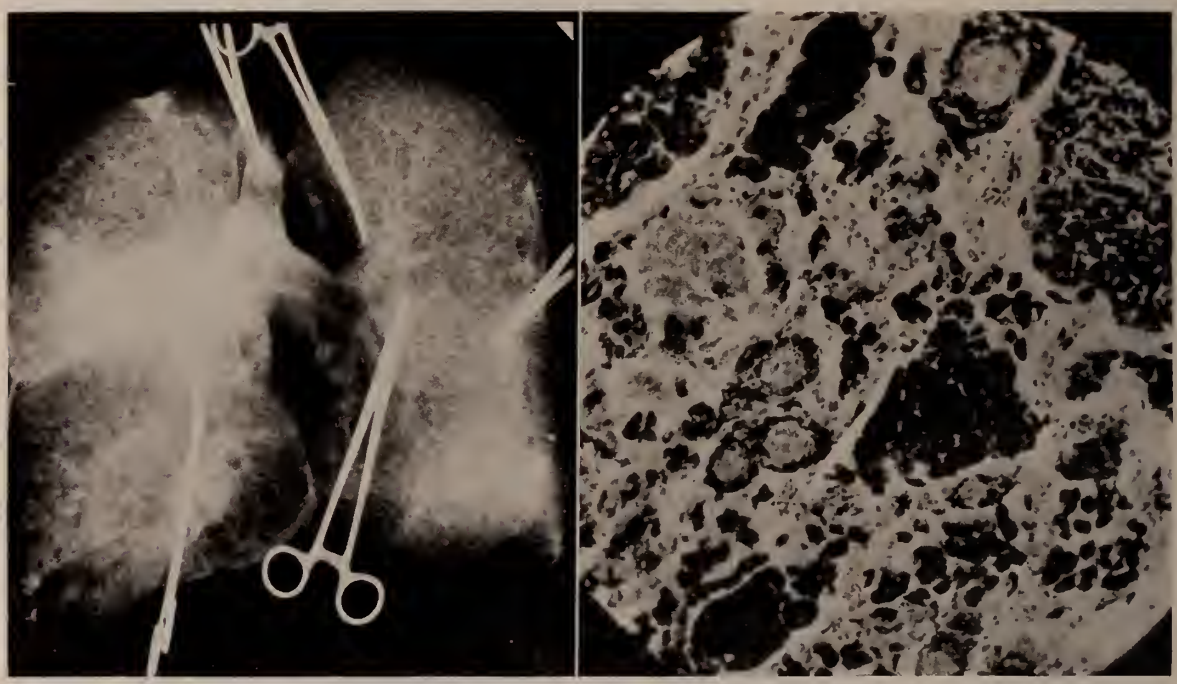


Fig. 2. A. Radiograph of post morten specimen. B. Microscopic section of lung. Anthracosis—lymph spaces choked with carbon.

In a neighboring community, at La Salle and Oglesby, we have had extensive coal mines. Most of them are shut down now, but at one time La Salle, Oglesby and Spring Valley were the leaders in coal production in the state of Illinois before the heavier and more profitable veins were discovered in the southern part of the state, but many men that spent 10 to 30 years in the coal mines still live in these communities.

During the past year I have had an opportunity to examine the radiographs on several hundred of these old coal miners and while definite lung changes were noted in many of them, the radiographic densities were decidedly different in character from those noted in the silica workers. While the radiographic densities in silicosis are discreet and sharply outlined, in anthracosis the densities have an "amorphous" mottled appearance.

The difference in the character of the radiographic densities in the two types of workers—silica miners as contrasted to coal miners—is indeed striking.

Dr. Henry Sweaney[2] of the Chicago Municipal Tuberculosis Sanatarium has made a thorough pathological study of silicosis and other forms of pneumoconiosis and found marked differences in the pathology of the lung in cases of silicosis as contrasted with anthracosis—in fact the tissue response to silica is entirely different from the tissue response to carbon and other inert dusts such as coal or iron and these differences can be clearly shown in the examination of the gross specimen and the microscopic slide. Furthermore, these pathological differences can be identified during life on properly produced radiographs even more clearly than are the densities of productive and exudative tuberculosis.

The nodulation of silicosis as seen in the pathological specimen is an almost specific fibrous tissue reaction (if uncomplicated by tu-

berculosis) while the reaction to anthracosis is essentially a blocking of the lymph spaces by particles of carbon and the fibrous tissue response is minimal. These differences with careful technic and proper contrast, density and sharpness can be clearly demonstrated on the Roentgen film during life and after death.

Silica produces a specific fibrous tissue response—inert dusts such as carbon do not.

These differences in tissue response are clearly shown in the accompanying photographs from Dr. Sweaney's[2] two illustrative cases. In the radiographs during life, the post mortem specimens, the post mortem radiographs and in the microscopic specimens—one a coal miner with lungs filled with carbon, the other a rock miner with silicotic nodules and superimposed tuberculosis.

I have found in the radiographic study of several hundred cases in each group that these pathological differences can be demonstrated during life by radiography in the same way productive tuberculosis has been differentiated from exudative tuberculosis. These differences, pathological and radiographic, are best shown by the accompanying illustrations. These studies are being continued and a later, more detailed report, of the technic, etc., will be made.

CONCLUSION

In silicosis there is a production of fibrous nodules—in anthracosis a blocking of lymph channels by a foreign body. The radiographic differences are striking. With our new occupational disease law—which I consider an admirable one giving adequate protection to both employer and employee—these radiographic findings and this differentiation, I believe, will have considerable value in adjudication of claims for disability due to silicosis and other forms of pneumoconiosis.

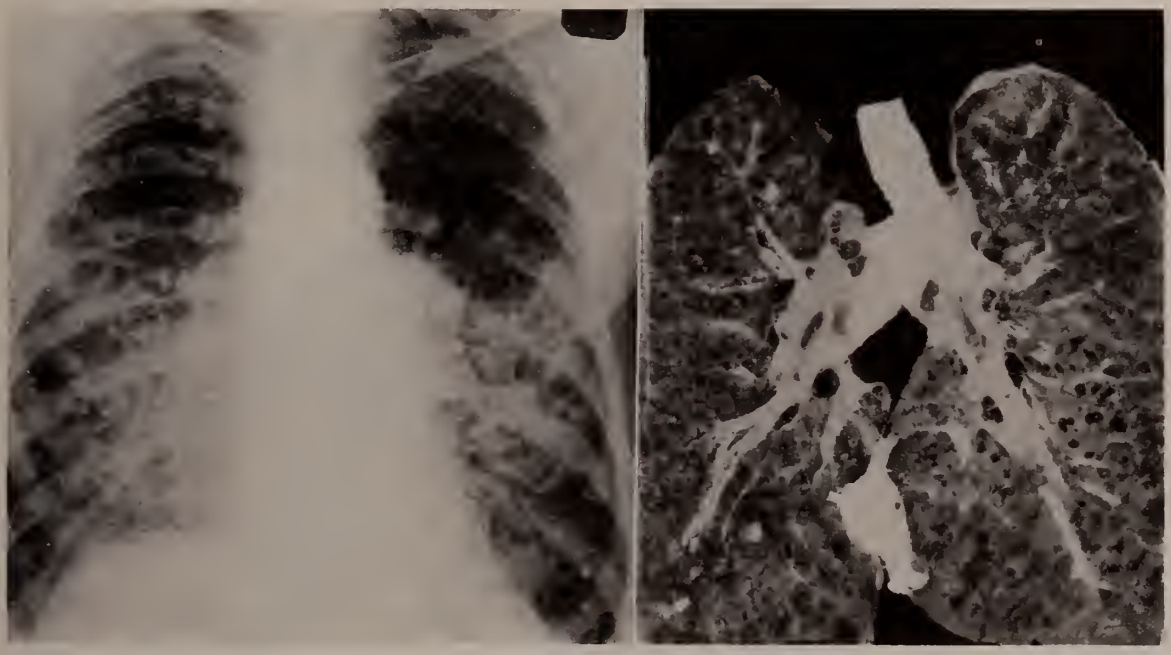


Fig. 3. Silicosis with superimposed tuberculosis. Rock miner, for 18 years. Case 579. A. Radiograph of predominant silicosis with superimposed tuberculosis. B. Post morten gross specimen of lung.

DISCUSSION

Paul Dick, Chicago: I think Dr. Pettit has covered rather well with his slides and discussion all of the particular points. Perhaps the only thing I might add is the pathology or pathological change that takes place with the entrance of the dust particle. The white blood cell surrounds the particle of silica and takes it out into the lymph space. After a few of these have accumulated, they gradually block the lymph space or channel at that particular point. After the white cell has surrounded the dust cell the irritation has not been eliminated and there is a chronic irritation from some of the dust cells, which continues to produce the fibrous tissue change which gives us the particular shadows he showed, both by the roentgenograms and the lantern slide, which is typical of silicosis in differentiating from the other forms of pneumoconiosis.

I feel that the early cases of silicosis have more of the form of productive type than the later forms. As

the condition has gone over a period of years, the fibrosis is greater and the density of the shadow increases as the silicosis has attained several years standing.

Henry Sweany, Chicago: This subject, of course, is one that is dear to me, and I have been much interested in it in recent years. I was much pleased to hear that Dr. Pettit was working on a method by which we may be able to differentiate the various forms of pneumoconiosis before death.

You know it is easy to do a post mortem with a chemical analysis and go through with the complete analysis of such a case and make a diagnosis after they have once died, but if you do that before death it is not nearly so easy. After all, from a standpoint of benefit to the individual, *that* must be done if you are ever going to practice medicine as we are supposed to do.

The work that Dr. Pettit has suggested here in using this high-speed Bucky diaphragm, I believe, is a move in the right direction to differentiate these different lesions that are really fundamentally different in their make-up, and at least, so far as the pure types of these respective diseases are concerned, it is going to lay a foundation that will be very useful for the future.

In making a study of the chest roentgenograms, it would be very well to ask ourselves: What is it, after all, that causes the shadow on a roentgenogram? We must get down to fundamentals on that and decide that it is really certain chemical elements. Perhaps the most important of the chemical elements is calcium and next most important would be iron. Then we can run down the line for others, the rare elements in the body, such as iodin, silica and compounds like that which help to obstruct these rays in order to produce a shadow on the film.

What develops when we see a normal chest, what do we see? We see some large branchings out from the hilum, most of which are due to vascular shadows. The vascular shadow out from the hilum is made up of really the two components. The first is the blood itself,—the blood stream itself containing a certain amount of iron. Next is the wall of the vessel. Both of those things go into the vascular hilum shadow. All of us recall having seen those little round shadows on the roentgenogram, which are soft and smooth and either round or oblong, produced by the blood vessel when you see it on end. But the fibrous tissue that goes into the wall of the artery also casts a shadow, and in that fibrous tissue we have a certain amount of calcium, a certain amount of silica, a certain amount of chemical elements that make up the shadow.

What happens when we have disease? When you have a disease that gradually develops in the lung from the hilum outward, as we have in these pneumoconioses, you have first a plugging of the lumph vessels and an increase of fibrous tissue around these lymphatics and in the intravascular spaces that helps to exaggerate the hilum shadows, and a disease such as whooping cough, pneumonia and similar diseases will leave a scar of fibrous tissue that will exaggerate that shadow.

When you have a lung full of coal pigment and the lymphatics also filled with coal pigment, that shadow is also exaggerated. But when you have silica present,

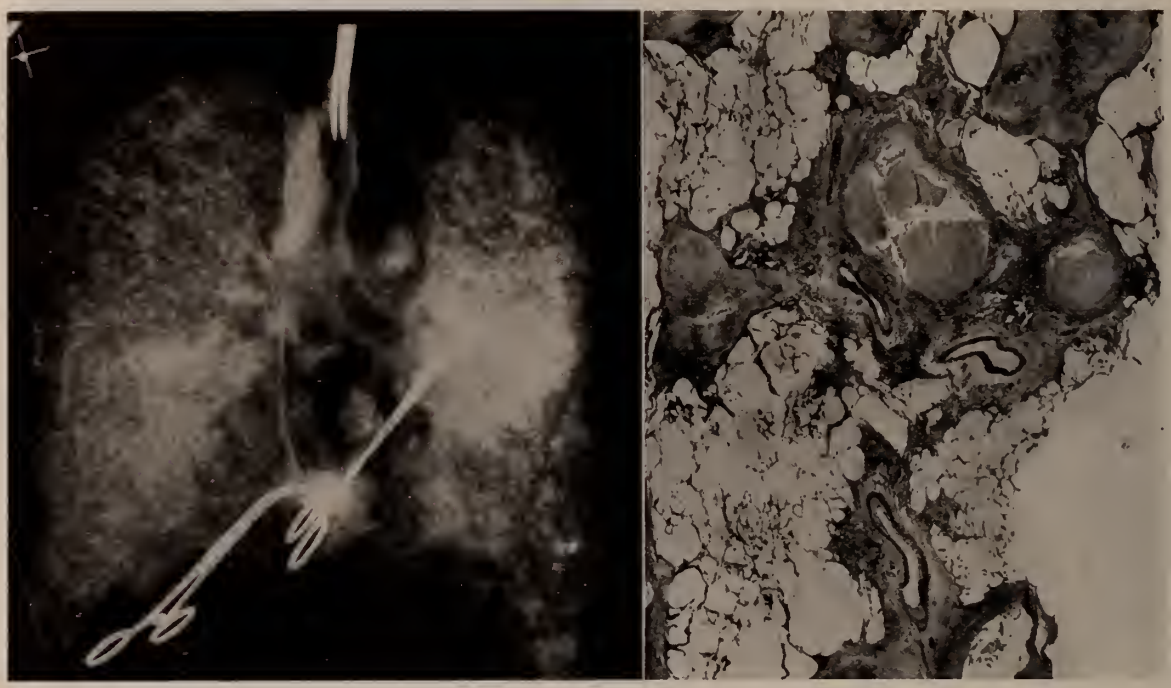


Fig. 4. A. Radiograph of post mortem specimen. Case 579. B. Microscopic section of lung. Silicotic nodules.

1. J. A. M. A., 106: 592, 1936.
2. Archives of Pathology, 22: 593, 1936.

there is something in addition to this stretching and plugging of lymph vessels. In addition, there is the slow development of these fibrous *"whorls"* that in later stages of the disease appear as soft round shadows on the roentgenogram, beginning from a millimeter or less in size and gradually enlarging to five millimeters or more in diameter.

When the silicosis is a pure type of involvement it is rather characteristic. You all know how they spread out from the hilum and how it is practically evenly distributed, perhaps a little more on the right. But you rarely see silicosis in its pure form. What you do see is a blending out of the margin of these nodules and increase or decrease in the densities, one from the other. What is the cause of that?

My observation has suggested to me very strongly that when you begin to see a difference in the margins of these nodules and when you begin to see a difference in the densities then you can begin to suspect that tuberculosis is making its inroads into the silicotic nodules. Why are they more dense? Simply because in the caseous nodules you also have a gradual accumulation of calcium.

In summarizing them, you have, in the first place, your vascular shadows, and your exaggerated vascular shadows by fibrous tissue running along parallel to the vessels as you have in ordinary coal dust disease,—pneumoconiosis due to coal dust. Then you have the beginning of the nodules, the specific nodule of silicosis, which itself has its characteristics, rather soft, even, round; on top of that again your incoming tubercle bacilli that obliterates all the smooth markings, makes the edges fuzzy and changes the density from smooth, even density to one of irregular density and one that shows evidence of what we think is calcium.

I see no reason, therefore, why further advances are not feasible in differentiating these various changes.

Dr. M. Pollak, Peoria: I was very much interested in Dr. Pettit's paper and greatly interested in Dr. Sweeney's discussion and exhibit. I think it would have been worth while for me to travel quite a distance to see the exhibit and to hear this paper, because I learned quite a good deal about silicosis.

Silicosis is becoming more and more important, particularly in the industrial states. You know that since last year we have had in Illinois the statute covering occupational diseases including silicosis. A great deal will depend on the x-ray man in diagnosing silicosis, and he can make or break factories and through them uphold or destroy the life of industrial communities.

In silicosis, the occupational history is quite important. We must remember, however, that we may find silicosis not only among people who are working in plain silica dust but also in other dust. In my short series of cases of silicosis, I found a painter doing nothing but painting. At the age of fifty, he developed silico-tuberculosis, proven at post mortem.

In general, we pay little attention to another form of pneumoconiosis. The attention given in text-books to anthracosis is negligible. Considering anthracosis, I have a series of films, I would like to show, of a man whom I have observed over two years. The question in my mind in this case was whether he had silicosis or lung tumor. We went into the industrial history of the man and found that from the age of seventeen to the time he died at fifty, he was doing nothing but work as a stationary fireman. On that basis the diagnosis of silicosis was discounted. I thought he might have a tumor and thought also of syphilis, the lesion being in the lower lobes, but the Wassermann test was negative. We had a post mortem and what we thought to be a tumor on the x-ray film was a very dense fibrotic mass caused by anthracosis. The lung was hard as stone and all the periphery was filled with bullous emphysematous blebs. Death was due to heart failure. I believe we cannot discard anthracosis as a negligible thing as we usually do.

Dr. Pettit (closing the discussion): I feel with improved technique and with the knowledge of the things we interpret, we are going to more sharply differentiate the things we find on x-ray examination.

THE CONVALESCENT CARE OF ANTERIOR POLIOMYELITIS

Sidney Sideman, M.D.

CHICAGO

Many of the patients afflicted with infantile paralysis during the recent epidemic, are now in the convalescent stage of the disease.

The course of infantile paralysis, known scientifically as anterior poliomyelitis, is divided into three stages, from the point of view of paralytic involvement. The first or acute stage constitutes the period from the onset of paralysis to the disappearance of muscular tenderness. This lasts from two to six weeks, but may persist longer. The second or convalescent stage begins at the cessation of muscular tenderness and terminates when there is no further improvement in muscle strength, in spite of adequate treatment. There is no time limit to this phase of the disease, but in most cases it is at least two years. The third stage, or the stage of residual paralysis, begins when there is no further improvement of muscle strength and lasts the remainder of the individual's life. It is during this last stage that all the reconstructive surgery should be performed to enable the patient to obtain the maximum degree of functional activity that it is possible for one or more operations to provide. Your orthopedic surgeon knowns how to reconstruct and re-habilitate and he may be able to perform some so-called miracles which result in the discarding of crutches and braces forever. Unfortunately

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there are some patients so severely paralyzed that there is little or nothing left to reconstruct. Also, there are some patients so inadequately treated during the very important convalescent stage, that the maximum muscle power is not obtained and the deformities are multiple and severe. With adequate care during the convalescent stage, it should be possible to prevent most deformities, even if the disability cannot be overcome. For this reason, it is the duty of anyone responsible for a patient in that phase of the illness, to have an adequate appreciation of convalescent-stage care in infantile paralysis.

One of the most important advances in the care of patients afflicted with infantile paralysis is the realization of the fact that this condition is not hopeless and that orthopedic treatment offers great benefit. The orthopedist utilizes mechanical methods to improve the function of the paralyzed part. These methods consist of proper rest, graded exercises, apparatus, physical therapy and surgical precedures. Orthopedic treatment should be instituted immediately on the appearance of even the slightest degree of muscle weakness.

The degree of loss of muscle strength can be graded according to one of the accepted methods. A popular classification of muscle power is one based on the rating of each muscle as absent, trace, poor, fair, and good. Physical therapists are trained in muscle examinations and can grade individual muscles. These grades are recorded on special charts which list all the muscles of the body. Properly kept records of repeated muscle tests reveal at a glance the progress of the patient. When the record shows "absent" or "trace" muscle gradually become poor, fair or good, it is of the greatest encouragement to patient and family, and means more than the trite phrase "you are getting stronger".

Muscle tests should be repeated frequently during the acute stage and continued at regular intervals during the convalescent stage. After the acute phase has subsided it is only necessary to test the involved muscles.

The treatment during the acute and convalescent stages has as its object the restoration of muscle power, the prevention of deformity, and the maintenance of circulation. Restoration of muscle power is obtained by a program of rest and exercises. At the beginning, rest is the most important but as the convalescence progresses, exercises are gradually given more time. Exercises must be started slowly and gradually increased, keeping in mind that fatigue, local or general, is harmful. Stop exercising before the onset of fatigue.

The prevention of deformity requires careful vigilance and necessitates the application of splints.

Maintenance of circulation is necessary for proper nourishment of muscle tissue. Stimulation of circulation will faciliate the return of muscle power. Local heat is the best method of aiding circulation and this may best be applied in the form of radiant heat by means of a simple incandescent lamp baker or radiant heat lamp such as the infra-red. Electric pads and hot water bags may be used. Diathermy and the induction forms of heat may be prescribed by the attending physician if he desires. They are useful adjuvants but by no means a necessity. Ultraviolet lamp is of value only for its tonic effect. It is not primarily a heat-producing apparatus.

Rest during the acute and early convalescent stages is the most important therapeutic agent. This means mental as well as physical rest. It cannot be over-done. The anxious parent or patient must realize the importance of a prolonged period of inactivity. They must be patient and not criticise their physician for enforcing rest or for his refusal to get the patient up out of bed.

There are some authorities who believe every patient should be confined to bed at least one year from onset of illness. This is not necessary in most cases, but it certainly is advisable for many individuals. The patient must be kept quiet, flat in a bed that has boards between the mattress and springs, and the involved part placed in a splint. The splints may be made of wood, of wire and cloth, of plaster of paris, i.e., removable casts, and of aluminum. They must be properly fitted to provide support and protection. They must maintain the involved part in the appropriate position without constriction. After a while, splints can be removed and braces applied which fulfill the requirements as to proper position of part, avoidance of constriction, simple adjustment of joint mobility and strength of materials, but lightness of weight.

The desired position of immobilization in

splints is dependent on the localization and degree of involvement. Your medical adviser knows how to determine these positions. As a general rule the parts are to be placed in the normal position for function. When the paralysis is not complete the weaker antagonist of each group should be favored by a position of relaxation. Each individual presents his own splinting problem and it is the physician in attendance who determines the proper position.

The muscles of the trunk and abdomen, being accessory muscles of respiration, cannot be immobilized but they can be protected by a removable plaster cast, corset or brace. Curvatures of the spine have developed under strict, painstaking care in the best hands and no one can be criticized. They are difficult to prevent.

It is during the convalescent stage that the greater part of the return of muscle power is obtained. The most important method of obtaining this increase of muscle power is by means of carefully graded voluntary active muscle exercises. The method is known as muscle training or re-education. The exercises are best administered by a trained physical therapist but can be given by a nurse, parent or attendant previously instructed by one who has had special training (A detailed description of suitable exercises can be obtained from the United States Public Health Service, by requesting Reprint No. 1197.)

Muscle training should be preceded by heat and massage to thoroughly warm the part and improve the circulation which increases the contractile power of the muscle. Massage should be manual and not by mechanical vibrators.

Throughout the period of muscle training, success depends on the faith and cooperation of patient and enthusiasm and perseverance of the therapist.

Exercises are given in bed or on a firm cushioned table and are called "dry". They are also given under water and are caller under-water gymnastics. The water should be warm, 88 degree to 90 degree F., and can be in a specially constructed tank easily obtained and set up in the home, or in a pool at some institution.

The use of direct electrical stimulation of muscles in infantile paralysis has authorities divided; some for, others against. In my opinion it is of little or no value and in the acute stage, of definite harm.

The patient in the convalescent stage should be given nourishing foods and whatever medication and tonics the attending physician deems necessary. Underweight individuals should be encouraged to gain. overweight individuals should be brought down to normal by a suitable diet that will not lower their resistance.

THE CONTROL OF MENOPAUSAL SYMPTOMS

HAROLD SWANBERG, B. Sc., M. D., F. A. C. P.
Radiologist, St. Mary's and Blessing Hospitals
Editor, Radiologic Review & Mississippi Valley Medical Journal
QUINCY, ILLINOIS

With the increasing use of radiation methods to control uterine hemorrhage, uterine fibroids, uterine cancer, etc., there is a corresponding interest in the most effective treatment to relieve the vasomotor symptoms (hot and cold flashes, perspiration, vertigo, faintness, tachycardia, gastrointestinal disorders, numbness and tingling of the hands and feet. various paresthesias and vicarious bleeding), probably the most distressing manifestation (in varying degrees), incident to menopause in some patients.

The menopause is of three general types (natural, artificial and premature), the symptomatology being essentially the same for all and is definitely an endocrine disturbance. Cessation of ovarion function (hypofunction) is the primary causative factor. The withdrawal of the ovarian hormone simply initiates the endocrine disturbance and the symptoms accompanying it are probably due to hyper or hypo-function of other endocrine organs (thyroid, adrenal and pitutiary) with hyperfunction of the pituitary as probably the most noticeable change.

The proof of ovarian deficiency is easily seen in the analogy of the symptoms exhibited after surgical castration, also by the relief of the symptoms through the administration of the standardized follicular sex hormones. It has also been demonstrated[1] that there is an excess of anterior pituitary sex hormone (prolan) in the circulation of nearly 60% of menopausal (natural or artificial) women. This seems to be a compensatory hyperfunction of the anterior

pituitiary and appears to be of a transitory nature in most instances.

Novak,[2] (Associate in Gynecology at Johns Hopkins) states: "It should, first of all, be emphasized that the majority of menopausal women need no organotherapy whatever, for either the symptoms are very slight, or they are controllable by such simple measures as reassurance, insistence on the avoidance of physical or mental stress or worry, and perhaps the use of such simple nerve sedatives as the bromides. In a minority of cases, however, and not infrequently also in the artificial menopause, produced by radium therapy or operation, the symptoms may be so distressing as to call for efforts at relief."

It has been estimated that while 80% of patients have vasometer symptoms in different degrees in the natural menopause, only about 5 to 10% have symptoms severe enough to demand special treatment. Keene[3] (Prof. of Gynecology, University of Pennsylvania) states that for some unknown reason the menopausal symptoms are usually more intense and persistent following irradiation than surgery. He also states that in operations, "even with ovarian conservation, severe menopause symptoms will occur in 7%: when the uterus has been amputated sufficiently high to permit of menstruation, the menopausal symptoms are largely eliminated. With hysterectomy, the reproductive function is lost and the onset of the menopause will be earlier than normal."

Incident of Radium Dosage. Keene believes that the incident of intense menopausal symptoms following radium is largely influenced by the radium dosage. In a series of 391 patients treated with radium for functional hemorrhage he noted the following:

Number of Patients	Age	Severe Menopausal Symptoms	Bleeding Controlled	Radium Dosage in Mg. Hours
21	Less than 20	0%	88%	200 to 500
84	20 to 30	8%	88%	200 to 500
91	30 to 40	21%	95%	200 to 1200
165	40 to 50	31%	99%	400 to 1200
30	50 to 60	3%	100%	600 to 1200

Keene believes that the ovaries in patients from 20 to 30 are highly resistant to radium or they possess a strong recuperative power; that increasing susceptibility to irradiation begins after 30, gradually increases and reaches its height in patients who continue to menstruate after 50. He considers the 200 to 500 milligram hours dose ideal in patients under 30.

Keene[3] observed that in patients from 30 to 40, who are given only 200 to 300 milligram hours, 80% have their hemorrhage controlled with no permanent amenorrhea and no severe menopausal symptoms:

"With gradual increase in dosage, there is a rapid increase in menopausal symptoms until with 800 to 1200 milligram hours, permanent amenorrhea occurred in 56% and severe menopausal symptoms in 47%. In fairness to radium therapy, let us analyze the initial dosage in this group. We find that the average dosage was much larger than it should have been and the conclusion is warranted that these unsatisfactory results (several menopausal symptoms) are due not so much to the fault of the method as to its application. . . . We believe that with a reduction of the initial dosage to 300 milligram hours and an increase of not more than 100 milligram hours in case re-radiation becomes necessary radium therapy is the method of choice in this group."

Keene observed that in the 40 to 50 age group, 97% had their bleeding controlled with an initial menopausal radium dose (800 to 1200 mg. hours) but with severe menopausal symptoms in 38%; with 600 to 700 milligram hours, the bleeding was controlled in 87% with the incident of menopausal symptoms 19%; with 400 milligram hours, bleeding is controlled in over 80% with a still smaller per cent of reactions:

"So[3] impressed are we by the results of this study that we propose to give the 400 milligram hour dosage a trial in women near 40 years of age. Should this and a re-radiation dosage of 500 milligram hours fail we believe operation should be considered because in the end, it is a more conservative measure than increased irradiation. In women near 50, increased radium dosage or roentgen therapy can be used because the incidence of severe menopausal symptoms will more nearly approximate that of the uninduced menopause.

"Between 50 to 60 years of age the results of radium therapy approach perfection. Maximum dosage can be given almost with impunity since severe menopausal reactions develop in but 3%."

Hormone Therapy — Kurzrok[4] (Columbia University Medical Center) has recently published his observations of ten years' laboratory research and bedside study of the endocrines in obstetrics and gynecology. This book is probably the best written and most practical to appear and incorporates the many recent discoveries in endocrine physiology. His method of treating the climacteric has been to rely chiefly on the administration of estrogenic hormones. The relative merits of the various commercial estrogens

in the treatment of menopausal symptoms has not yet been determined. There are a number of these preparations reported useful in this condition (and approved by the Council on Pharmacy and Chemistry of the A.M.A.) marketed under many names leading to considerable confusion: 1. estrone or theelin (theelin, P. D. & Co., amniotin, Squibb); 2. estriol or theelol (theelol, P. D. & Co.,); 3. estradiol or dihydrotheelin (progynon-DH, Schering); 4. estradiol benzoate (progynon-B, Schering); and 5. estriol glycuronide (emmenin, A. M. & H.). The unit of dosage is the so-called Allen-Dorsey rat unit (R.U.) or mouse unit (M.U.) one rat unit being equivalent to 5 mouse units. Some clinicians prefer the League of Nations International Unit (I.U.) and usually one rat unit is considered equivalent to from three to five international units.

The following is quoted from Kurzrok's[4] interesting text:

"The chief therapeutic agents for the treatment of the climacteric are estrone, calcium and such therapeutic measures as each case may specifically require. We take cognizance of the fact that the number and intensity of symptoms vary from patient to patient and that women differ a great deal in temperament. Hence, there can be no cut and dried method of treatment. It has been argued in many quarters that the therapeutic results obtained are merely suggestive. We do not deny that in some patients there is a distinct psychic element, but in our experience it does not involve more than 10 or 20% of the cases. It has frequently seemed to us somewhat bizarre that the loudest exponents of the suggestive results idea have never themselves treated a patient.

"The results of therapy can be verified experimentally by the vaginal smear test as demonstrated by Papanicolaou and Shorr (1936). These investigators found that the vaginal smear test furnishes a simple objective guide for the treatment of the menopausal syndrome with follicular hormone. With an adequate amount of estrone, there occurs a transformation of the vaginal smear from the menopausal to the leucopenic type, with the large flat cells, largely cornified, with small pyknotic nuclei. This is the type of smear which is found normally during the high follicular phase of the menstrual cycle just prior to ovulation. This change in the smear is generally associated with relief of the menopausal symptoms.

"Estrone should be given in large doses. It is best administered hypodermically, though the oral route may be used. Oral administration required from five to twenty times the hypodermic dose. It has been our custom to begin with 50,000 I. U. (1 R.U. = 5 I. U.) of follicular hormone (amniotin or progynon-B) twice a week. The injections are always given with a 20 gauge needle intramuscularly into the buttocks. Subcutaneous injections produce painful lumps. As the vasomotor symptoms diminish the number of injections is decreased until one dose every ten days is reached. Maintaining the same frequency of injection an attempt may be made to use less than 50,000 I. U. per dose. Either the patient's symptoms or the vaginal smear may be used as a guide. It is not advisable to increase the intervals between injections beyond two weeks, for there is a recurrence of symptoms. Adequate treatment results in a definite decrease in the number of sweats and flushes per day, namely, from one every half hour to one or two per day. There is a definite increase in energy and sleep becomes more restful and refreshing. We must stress the importance of adequate and frequent dosage. Insufficient hormone is equivalent to none at all, for it leaves the patient discouraged with the treatment.

"During the past few years we have injected in addition to estrone, an alcohol-ether extract of the entire ovary. It is commercially available in the form of Sistomensin (Ciba). The basis for the use of this extract is as follows. One is frequently asked whether estrone and progesterone are the only hormones in the ovary. May there not be others whose function is not as yet clearly defined (Kaufmann, Muller, and Muhlbach, 1932; Laqueur, 1933) but whose action is on the general metabolic processes, the blood vessels, blood cholesterol, fat metabolism, etc.? (F. Laqueur, 1934.) It has been our impression (based on its use for more than 400 cases in 5 years) that when Sistomensin (1 cc.) is added to the injected estrone the therapeutic effect of the latter is enhanced. This applies only to the relief of the vasomotor symptoms.

"The third therapeutic agent that we have routinely used is calcium. The reasons for its use are as follows: Many of the symptoms frequently encountered during the climacteric are due to disturbances of the vasomotor system—such as sweats, flushes, palpitations, etc. We believe these to be due to an increased irritability of the vasomotor system. Calcium depresses the irritability of the cell, hence its use in this connection. The salt used is the gluconate in doses ranging from 2.0 to 5.0 grams per diem.

"The question is frequently asked: How long should treatment be continued? Does treatment prolong the duration of the climacteric? Our belief is that treatment should continue as long as distressing symptoms are present, whether it takes five weeks or five years. Patients will vary tremendously in their ability to endure uncomfortable sensations. Hence, the psychic make-up of the patient must serve as an additional guide in our therapy. Every effort should be made to lessen the frequency of injections, and finally to replace injections by oral medication. We are constantly being supplied with tablets having greater potency (1 tablet—3,000 to 10,000 R.U.) but it must be remembered that it takes from 5 to 20 times as much follicular hormone to produce an effect when given by mouth as by injection. We feel that treatment neither lengthens nor shortens the duration of the climacteric. Its duration is a function of the individual

as an entity. The aim of our present treatment is to alleviate symptoms. What tomorrow will bring we cannot prophesy."

Radiation Treatment — Sedatives or the follicular hormone, alone or in combination, will not relieve menopausal symptoms in all cases. Furthermore, while the estrogenic substances alleviate most symptoms their use is transient in effect and purely substitutional. These facts have stimulated inivestigators to look for other therapeutic agents that might be more effective.

The presence of a hyperactive anterior pituitary in the menopause has been mentioned above. In recent years a number of investigators have observed the effects of irradiating the pituitary in this condition. One of the most interesting recent studies along this line is by Collins, Thomas and Menville[5] (Tulane University) who claim that irradiation of the pituitary affords more marked relief and for a longer period with more lasting effect than any other known type of therapy and that it should be employed in all cases in which relief is not obtained from sedatives or the follicular hormone. A summary of their work:

"In[5] 33 patients the irradiation dose for each exposure was 148 r with the following factors: distance 12 in., 5 ma., 150 kv. 1 mm. Al and 0.25 mm. Cu. eight minutes. The first exposure was given through the temporal region and repeated on the following day to the left side, and three weeks later the same procedure was repeated. Only one patient, with surgical menopause of several years duration, failed to improve. In 17 cases the menopause had been surgically induced and in 16 was natural. Improvement is most often noticed during the third week of treatment, and complete relief is obtained three weeks after the last exposure. Investigations have shown conclusively that hypertrophy of the anterior portion of the pituitary with increased prolan secretion occurs at the menopause. An attempt will subsequently be made to demonstrate that the relief of symptoms afforded by irradiation is accompanied by disappearance of excess prolan and that this is the effect of a destructive dose of roentgen rays to the hypertrophied pituitary."

In commentating on the above work, Kaplan[6] (Clinical Prof. of Surgery, New York University) states: "A well worth while procedure and one from which we have obtained favorable results in over 90% of cases treated."

It should be noted that the above irradiation procedure was carried out on patients who either had a natural or a surgical menopause, no mention being made of a radiation menopause. Since the symptoms of the surgical and irradiation menopause are practically the same it would appear that what would prove effective treatment in one would also be effective in the other. However, we know of no reported studies where this dual type of radiation therapy has been carried out (irradiation of pituitary following pelvic irradiation to produce an artificial menopause).

A deterrent to the not too persisent or too prolonged treatment with estrogenic substance is the fact that they have been proven to be carcinogenic in animals.

"Another[7] possible deterrent to persistent hormone therapy is the fact that within the past few years a number of reliable investigators have been able to produce malignant neoplasms in animals by repeated estrogenis hormone injections. This has been repeatedly confirmed by research workers in a number of institutions. Loeb (Prof. of Pathology, Washington University School of Medicine) states, 'The carcinogenic hydrocarbons of tar and related compounds, estrogenic substances as well as certain other factors, in the course of time may induce cancer formation in those tissues on which they act.'

"The production of human cancer from such injections is yet to be shown. Kaplan (Director, Division of Cancer, City of New York and Clinical Prof. of Surgery, N. Y. University) states: 'Unfortunately, in the enthusiasm for a new science the dangers of increased hormonal action have been overlooked in the haste to effect relief of functional disorders. Recent experimental studies have shown the possibilities of increasing malignancy formation through hormone stimuli. This suggests that caution is required in prescribing persistent therapeutic use of such substances. . . . As radiology offers proved, valuable therapeutic aid in functional dyscrasias, other remedies which may produce untoward effects are less properly indicated.'

"Further evidence that caution should be used in the administration of the hormones has been expressed by Curtis: 'Long continued injection of large doses of theelin produces sclerosis of the ovaries. The inherent harmfulness of excessive luteinizing hormone is also evident in the lutein cysts which are the physiologic accompaniment of chorioepithelioma. Again implantation of anterior pituitary substance into adult mammals causes the development of ovarian cysts rather than a stimulation of follicular activity, thus suggesting a possible injurious effect which may accompany administration of the pituitary hormone of the future or its present-day substitute, the urinary anterior pituitary-like substance. Ovarian preparations of various sorts, administered orally, chiefly in tablet form, have enjoyed unmerited popularity. They are mostly inert and worthless. Corpus luteum, for example, is entirely inactive when given by mouth.'"

SUMMARY

There is much work to be done before our knowledge of the climacteric is complete. Be-

cause our knowledge is incomplete, the results of treatment are not always satisfactory, but the rational of treatment, both hormonal and radiation as outlined above, is worthy of careful consideration.

209-224 W. C. U. Building.

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THE MANAGEMENT OF THE THIRD STAGE OF LABOR

HOLLAND WILLIAMSON, M.D.

DANVILLE, ILLINOIS

The purpose of this paper is to emphasize 1. more intelligent care of the labor case after the delivery of the fetus, either full-term or premature, 2. more gentle handling of the uterus and its contents after the termination of the second stage, 3. prevention of infection and hemorrhage in the third stage, 4. the management of several pathological conditions in regard to the placental stage of labor.

The writer is well aware that on the management of the third stage of labor much has been written and that the clinical manifestation and the mechanism of the third stage of labor have long been known. The only changes have been those produced by the attendant himself on the individual case. It remeains therefore that only a brief review of the outstanding principles of this important phase of the obstetrical case be submitted. It seems that any attempt to reduce hemorrhage and infection should be helpful in these days when so much is being written on maternal mortality, morbidity and the lay criticism of the medical profession especially in obstetrics. It has been stated that more mothers died in the third stage of labor than in the other two combined.

Since 1861 the management of the third stage has been quite standardized. Before that period Williams[1] tells us that the placenta was removed by traction on the cord or manual removal of the placenta from uterus or vagina with the resultant high mortality and morbidity. Crede in 1853 described his method of immediate expression of the placenta and made the first great step in the prevention of infection and hemorrhage. His immediate expression met with considerable opposition claiming that it produced a greater loss of blood and caused more post partum hemorrhages. However this method, with some modification, is still in vogue throughout the world today. Williams also states that the method of Crede had been practiced as early as 1767 in the Rotunda Hospital in Dublin by John Harvie.

No one definitely knows what determines the site of implantation of the fertilized ovum. It is known that the usual site is well up in the anterior or posterior walls, sometimes more or less laterally, very rarely in the fundus and quite infrequently in the region of the cervix. These facts are in keeping with anatomy of the pregnant uterus, in that the walls of the contractile portion of the uterus are lined by a thick layer of rich decidual soil which is presumable ideal for implantation. Likewise this decidual soil is scanty in the lower uterine segment and absent entirely in the cervix itself.

With the termination of the second stage the normally implanted placenta begins to separate from the uterine muscle, the uterine contractions bringing about a decrease in the size of the original area of implantation. These contractions as reported by Frey and Foster[2] begin anywhere from a few seconds to three and one-half minutes following the birth of the child. This was recorded by the use of a hyster-otonograph. They show with considerable evidence that the expulsion of the fetus is not followed by a rest period of uterine activity as was heretofore assumed. The placenta continues to separate with these contractions but the membranes cling to the uterine wall and are generally removed by gentle traction on the placenta as it presents at the vulva. This may be well seen at Cesarian section when the uterus has been opened.

There are two methods of extrusion of the

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placenta described, namely, the Scultze and the Duncan. In the former the separation begins at the most central portion of the placenta and as the retro-placental hematoma grows, forces the fetal surface to present at the internal os. The experiments of Weibel[4] and Warnekros[3] proven by x-ray conclude that the placenta always leaves the uterus in the same manner and that the Duncan or Schultze method are developed in the vagina. Also that the retroplacental hematoma has very little to do with the separation of the placenta. They state further that separation occurs nearly always with the first or second contraction. What should be emphasized at this point is the importance of waiting for uterine contraction after the termination of the second stage of labor before any attempts are made to express the placenta. The mechanism of the third stage, that of separation and extrusion has been briefly described.

In these days when so much is being done to relieve the pains of labor we are unintentionally interfering with the normal mechanism of third stage and the clinical manifestation of the normal third stage may be entirely absent. It has been been repeatedly observed that the uses of analgesic drugs prevent the firm contraction of the uterus following the termination of the second stage with the increased loss of blood. It matters little, likewise, whether these drugs have been administered hypodermically, rectally, by mouth or by inhalation. In a study of 1,860 cases now under observation at the New York Lying In Hispital it has been learned that the drugs that produce relaxation always increase the blood loss. In their series with nembutal and rectal ether the incidence of hemorrhage (600 c.c. or more) was 18% in contrast to the normal of around 6%. In the group of cases having analgesia they report 8.5% as compared to the group having no analgesic drugs given of 5.8%. Therefore it seems well to emphasize that immediately following the birth of the child the subcutaneous administration of ½ c.c. of obstetrical pituitrin has many advocates. Attempting to stimulate uterine contractions which are materially interfered with by the use of drugs producing relaxation of the maternal musculature seems justified. At the Boston Lying In Hospital ½ c.c. of infundin is given immediately after the baby is born and the results have been reported to be very satisfactory.[5]

The practice of active massage of the uterus immediately after the birth of the child is, in the opinion of such authorities as Baer,[6] unnecessary and harmful. If the uterus is observed it can be outlined with the eye in most instances provided that the patient is not too extremely obese. Unless the uterus is rising noticeably with intrauterine hemorrhage the hand need not be placed on the organ, if necessary, however, only lightly massaging the anterior surface which often is sufficient to stimulate contractions. By keeping the hands entirely off the uterus only to palpate and diagnose separation, much hemorrhage can be prevented and a normal mechanism of the third stage will often take place. The separation of the placenta is noted by the hatchet shaped dome, slight asymmetry and the lengthening of the cord. Many times a slight trickling of blood may be noted at the vulva. With the descent of the placenta the hollow just in front of the symphysis pubis will be obliterated if the urinary bladder is empty. The separation of the placenta and descent into the lower uterine segment or inactive portion of the uterus may be surmised if the above points have been completed. After one is then assured of separation, by the most gentle expression with the heel of the palm on a firmly contracted uterus, the placenta and membranes may be expressed with the minimum loss of blood; the average being 250-300 c.c. With this minimum loss of blood we lower the morbidity of the puerperium so well known to all. It may also be mentioned at this point that the placenta should be expressed immediately after its separation and not after the conclusion of repair of perineal lacerations or episiotomies. There is nothing to be gained by waiting after the placenta has separated and hemorrhage may be invited.

The plan of treatment therefore recommended is ½ c.c. obstetrical pituitrin subcutaneously and watchful control of the uterus with mild expression when signs of separation and descent are present. All methods that compress or push the uterus forcefully downward toward the floor of the pelvic cavity are unnatural and should be labelled with disapproval. Such methods interfere with the normal mechanism of separation of the placenta, bruise and contuse the uterine muscle, cause unnecessary bleeding and carry the possibility, while rare, of inversion of the uterus, a catastrophe in itself. It is certainly not beyond

the realm of possibility to assume that existing birth injuries may be further damaged by forcefully pushing downward on a boggy puerperal uterus. Certain degrees of procidentia and uterine displacements may be produced that are seen at a later examination. The writer has seen the anterior lip of the cervix fully outside the vulva during forceful manipulation to deliver the placenta. Infection here, likewise, is more to be expected for it is no difficult matter to have infected materials so common around the rectum following the termination of the second stage, contaminate the external os if it is pushed completely outside the vaginal tract.

After the expulsion of the placenta and membrances it is to be emphasized that a careful examination should be made to be sure no cotyledon is left behind. There is a great source of satisfaction in knowing if sepsis develops that no placental tissue remains in the uterine cavity. Following the termination of the third stage certain precautions are to be taken to combat hemorrhage. C. Moir[7] has reported the chief use of ergo-metrine is in the treatment and prevention of post partum hemorrhage. This drug, however, lends itself most beautifully at the termination of the third stage. After oral administration the response appears in about seven and one-half minutes, after intramuscular injection the effect is noted in three and one-half minutes and after intravenous injection in about forty-five seconds. Its effect lasts for as long as three to four hours. This drug is marketed under several names but it is the pure alkaloid of ergot (ergonovine). The advantages of ergonovine over pituitrin is, first, the longer lasting effect and its relative freedom from reactions. Pastore[8] noted five reactions and one death from intravenous pituitrin in 96 cases. Severe reactions from pituitrin have been experienced by the writer in both gynecology and obstetrics. A physician's wife was given pituitrin following delivery and developed a most profound anaphylactic shock. Moir[9] also reports that pituitrin may have a constrictor action on the coronary vessels of the heart resulting in depression. Ergonovine on the other hand has no influence on the cardiovascular system and has been given in full doses (1 mg. by mouth, 0.5 mgs. by injection) to patients in severe shock. It is therefore recommended that the new ergot alkaloid be given following the termination of the third stage of labor.

The management of the retained placenta needs only to be reviewed. After a period of time has elapsed, set arbitrarily in individual clinics or hemorrhage exists to alarming stages, manual removal is instituted. Considerable risk is carried with the procedure as is well known. Kraistensen collected the cases of intrauterine manipulation in the Maternity of Copenhagen State Hospital from 1924 to 1933 and found that among 16,137 labor cases the uterus was invaded 208 times. He concludes that the intrauterine manipulations were dangerous only in patients that were infected or markedly anemic. Given such a case we desire to have a complet change of gowns and gloves for the operator and a complete change of sterile sheets and drapes for the patient; patient completely anesthetized, catheterized and carefully cleansed externally. Baer[11] describes a method of keeping the hand within the membranes by following the cord to the fetal surface of the placenta, then invaginating a fold of membrane in advance of the hand and gradually peeling the placenta away from the uterine wall. If this is possible the removal may be accomplished without the hand coming in contact with the uterine cavity and therefore reduces the infection possibility. The following case deserves consideration:

A Mrs. K., aged 17 years, primipara, white, married, entered the hospital on August 25, 1933, with a retained placenta, having been delivered on August 24, 1933, at 6 P. M., of an eight-pound female child, in a nearby town by a fellow physician. The prenatal period was quite normal as was her labor and delivery. Following the birth of the child the physician administered, hypodermically, one ampoule of a thymus pituitary extract; after a conservative period of time, attempts to express the placenta met with no success so the cord was tied close to the vulva and cut. The patient was seen again in four, and fourteen hours later but still the placenta could not be expressed. The patient was then transferred to the hospital. There was, on physical examination, the following pertinent findings: Uterus, firm, round, symmetrical, about 2 cm. below the umbilicus, usual post partum edema of vulva, minor laceration of perineum, slight lochial discharge. Blood analysis revealed on August 25, 1933: Hb. 60%; R.B.C. 3,250,000; W.B.C. 17,900; urinalysis essentially negative. It was deemed advisable, in the absence of hemorrhage, to maintain a conservative plan of treatment and unless the placenta was adherent (placenta accreta) we felt that it would be expelled in due time. This did not occur. The hemoglobin August 31, six days following delivery, had dropped to 52% and the red count to 2,910,000. The pulse and temperature had ranged about 100 respectively but the temperature suddenly rose to 104° F. on September 1,

1933, and pulse 140 followed by a hard chill. A 500 c.c. blood transfusion was given by the direct method; the operating room prepared for vaginal examination, manual removal if possible, or abdominal section, supravaginal hysterectomy, if a placenta accreta was found. Under ether anesthetic the placenta was removed quite easily after difficult manual dilatation of the cervix. The uterus was not packed, no hemorrhage being encountered. The patient went on to an uneventful recovery and was discharged on Sept. 6, 1933.

The delay in evacuating the uterus was carried out first because we felt that the case would terminate spontaneously and that no harm was being done in waiting. The only change noted was the progressive anemia. Secondly the patient had a few days to build up some resistance from a bateriological viewpoint against possible infection she might have harbored in the birth canal or had introduced at the time of delivery (Taussig).[12]

Hemorrhage following the delivery of the placenta does not properly come within the management of the third stage of labor. However the principal reason for teaching gentleness in the management of the third stage is to prevent hemorrhage and the unnecessary loss of blood, therefore it seems reasonable to describe the management of so closely an allied problem and some causes. It has been the writer's practice to have the husbands of all patients under his prenatal care to be matched and typed early in the pregnancy. If the husband is found to be a suitable donor by this examination I feel that the most powerful weapon in combating hemorrhage is within my reach. Professional donors are not always available on short notice. If confronted with a post partum hemorrhage the placenta is removed manually if necessary; the uterus is packed tightly with several yards of sterile gauze; intravenous ergonovine should be given and a blood transfusion is done, giving what may be considered for her an adequate amount. The citrated blood method is simple, easy to do technically and safe. The Scanell direct method is my method of choice if time is not a factor and the patient can be taken to the operating room. Much interesting work is now being conducted on the use of moccasin snake venom in connection with obstetrical bleeding. A woman with a history of bleeding or severe anemia, with previous pregnancies, would justify the use, or at least the consideration, of such venom. It has been shown to be free from action on the baby and has no deleterious effects on the mother. The use of the snake venom should be given a trial in post partum hemorrhages even though its effects may be delayed.[13] There has been no experience with such material by the writer.

The blood loss in the third stage of labor from atony of the uterus, a condition met not infrequently when large doses of barbiturates are used, may be controlled by the prompt injection of pituitrin intravenously. Pastore[14] reports 1½ minims of surgical pituitrin diluted in 2.5 c.c. normal saline and injected slowly in the median cubital vein produces a specific response. However the drug is not without danger as has been stated above and should be used only in uterine atony. Cervical lacerations should be sought and dealt with accordingly.

Owing to the previous over-distension of the uterus in twin pregnancies or hydramnios, third stage often will be complicated. Hemorrhage is the most common danger from such a uterus that fails to contract satisfactorily. With such a tendency to an excessive loss of blood the placenta or placentate should be removed manually, the uterus packed and ergonovine given intravenously if the indications are urgent.

The third stage of labor in Cesarian section is treated by two methods: The placenta is given sufficient time to separate and the membranes then carefully wiped off the uterine wall or it is manually removed promptly following the delivery of the baby. Pituitrin is usually injected directly into the uterine muscle or intravenously as described above. Adair[15] reported the use of ergotrates (Lilly's) in the third stage, 0.25 mg. of ergotrate being given intravenously as the baby was delivered through the uterine incision. In all of the cases the uterine muscle contracted firmly, the uterine wall became blanched, and its contractions drew the peritoneum into small folds spread over the surface of the uterus. These changes were evidence of the marked tetany and contractility of the uterus. The point in the management is whether or not to leave a gauze pack in the uterus. Many authorities leave such a pack in the uterus with a bobin attachment for removal vaginally later in every case, which seems unnecessary unless severe bleeding is taking place. The same indication seems to hold in Cesarian section in regard to leaving in a pack as it does in the vaginal delivery, that is, hemorrhage that is not being controlled.

In Placenta abruptio the third stage may give

rise to much troublesome bleeding which cannot be controlled by uterine packing. In such cases the uterus may be so paralyzed from blood being shot between the muscle fibers that contraction is impossibly (Couvelaire uterus). Supravaginal hysterectomy is the treatment of choice and should not be delayed.

The problem of management of the placenta in abdominal pregnancy offers considerable perplexity. In one case seen at full term done by Cornell at Chicago Lying-In Hospital the cord was ligated as near the fetal surface of the placenta as possible and the abdomen closed without drainage. The patient was discharged following her convalescence of two weeks in the hospital but returned with a large abscess later on which drained for several weeks but finally went on to complete recovery. It is often impossible to remove any of the placental tissue due to its dense adherence to the abdominal viscera. The opinion of most authorities is to deal with this rarity with great caution, to remove the fetus and avoid the placental structures as much as possible. Fatal hemorrhage may be encountered at this stage. The closure of the abdomen, leaving the placenta in situ, without drainage seems to be the method of choice. A case reported at the St. Louis Gynecological Society in February, 1937, of abdominal pregnancy in which marsupialization of the sac and packing allowed the placent to come away piecemeal. The case reported died early in the postoperative days. Such management prolongs convalescence and gives rise to many complications.

SUMMARY:

1. The third stage of labor has been reviewed and discussed with special emphasis placed upon the use of pituitrin and the new alkaloid of ergot.

2. With the increased use of the analgesic drugs more relaxation and more post partum hemorrhages are observed.

3. A case of retained placenta after full term delivery is reported.

4. The method of management, recognized by most authorities, of several pathological conditions in connection with the third stage of labor have been presented.

106 N. Vermilion St.

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DISCUSSION

Dr. Chester C. Doherty, Chicago: I think Dr. Williamson voices the opinion of all of us in the management of the third stage of labor. It should be conservative. We are all familiar with the signs of separation of the placenta but we are not patient enough in many instances to wait for these signs to occur. Probably the chief cause of pathology in the third stage of labor is the attendant himself who tries to deliver the placenta before it has separated from the uterine wall. Dr. Joseph Baer of Michael Reese Hospital, Chicago, has described, practiced and taught for many years a method which requires no manipulation of the uterus, by simply waiting for signs of separation of the placenta and then grasping the abdominal wall with your hands, holding the recti muscles together to give the patient some support and having her bear down at the same time; the placenta will be delivered without any pressure on the uterus.

I would like to add two other etiological factors in the pathology of the third stage of labor. The first is delay, after giving pituitrin, in delivering the placenta after separation has occurred. I recently saw a patient in whom there was delay. All signs of separation had occurred. Vaginal examination revealed a fold of placenta lying in the lower uterine segment, with the contractile portion of the uterus at the site of the internal os so tightly contracted around the placenta that it was impossible to draw the placenta through it. We were interested in resuscitating the baby and forgot the mother. Fifteen minims of adrenalin relaxed that ring right under my hands, and manual removal was accomplished.

The other etiological factor is anomalies of the uterus. We are very apt to have delays in the third stage of labor in bicornate uterus. Both of these conditions will require manual interference.

Dr. Holland Williamson, Danville (closing): I wish to add only one point. In the Baer maneuver with which I am quite familiar, grasping the two recti muscles and asking the patient to bear down requires that the patient be totally awake and have control of all her faculties. However, most of my patients are quite asleep and I cannot get them to cooperate at all in the third stage of labor.

I fear some apology should be made for some of the threadbare statements I have made in the paper.

REPORT OF THE MATERNAL WELFARE COMMITTEE

F. H. Falls, M.S., M.D.

Professor of Obstetrics & Gynecology.
University of Illinois College of Medicine
Chairman of Advisory Committee.
Illinois State Board of Health

CHICAGO

The Illinois Department of Public Health in connection with the Educational Committee of the Illinois State Medical Society, and with the advice of the American Committee on Maternal Welfare have formulated a plan that can best be visualized by consulting the exhibit which appears in the scientific exhibits section at this meeting. Some uncertainty may be present in the minds of the members of this society as to the organization of this program; what are its purposes and who are behind the proposition. The steps in the development of the program are as follows:

After the passage of the Wagner Social Securities Bill, the State Department of Public Health was asked by the Childrens' Bureau to supervise the program in each state. Every state in the Union agreed to promote such a plan. The Director of the State Department of Public Health of Illinois asked me to suggest a plan for such educational program to present to the legislature. The plan was formulated, presented and met with approval. The governor appointed an Advisory Committee to the Director of the State Department of Public Health. On this committee with Dr. Falls are Dr. Jirka and Dr. Wightman of the Department of Public Health, Doctors Grulee, Hess and Crawford representing the pediatricians, and Dr. Ferguson, Chairman of the Educational Committee of the Illinois State Medical Society, together with representatives from several interested lay organizations, such as the Federated Women's Clubs, Parent Teachers, Farm Bureau, and State Nursing Association.

It was decided to present courses in obstetrics and pediatrics in various counties of the state, but before doing so the approval of the Council of the Illinois State Medical Society was sought, a plan was presented to the Council by the Chairman of the Advisory Committee on January 3, 1937, and accepted.

Dr. H. H. Hill, of the Department of Obstetrics, University of Illinois, College of Medicine, was appointed to the position of Field Consultant in Maternal and Child Hygiene, and was authorized to consult the secretaries of the various county medical societies where it was proposed to give courses, regarding the scope and character of the programs. A sub-committee of the American Committee on Maternal Welfare, consisting of Dr. Adair of the University of Chicago, Dr. Danforth of Northwestern University and Dr. Falls of the University of Illinois, suggested certain subjects for discussion and outlined lectures on these subjects to be used as a guide by the speakers who were to give talks at the County Medical Society meetings.

The lantern slide collections of the various Medical Schools were canvassed and duplicates made of those slides that were useful for illustrating the proposed lectures. The heads of the Departments of Obstetrics and Gynecology of the Chicago Medical Schools were asked to supply a list of the members of their staffs who could and would undertake to give these lectures. The Illinois Academy of Pediatrics also agreed to furnish speakers. It was necessary to get these programs under way by February 1 in order to complete the courses by the middle of May so that the results of the courses might be discussed at this annual meeting of the Illinois State Medical Society. This would assist in formulating plans for future courses. In order to familiarize the doctors of the state attending this meeting with the program and how it is organized, an exhibit was prepared which is on display in the scientific exhibits now. Space has been secured at the American Medical Association meeting at Atlantic City, where the exhibit which we have prepared for this meeting will be on display. This will invite comparison of the Illinois State plan with those planned for other states. Dr. Hill and the writer will be with the exhibit and discuss other state plans with a view to improve our own program.

A small post graduate course for licensed physicians consisting of one week of intensive work in obstetrics and pediatrics to be given at the College of Medicine, University of Illinois, will be offered. This course will be repeated every week for eight weeks and will be limited to ten men in each course. A registration fee of

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ten dollars will be the only fee in connection with the course.

A campaign of lay education is to be undertaken, working in cooperation with the Educational Committee of the State Medical Society, and through the representatives of the following organizations: Illinois Congress of Parent and Teachers Association, Illinois Federation of Women's Clubs, Illinois State Nurses Association, and the Home Extension Service of the University of Illinois. A plan for postgraduate instruction for nurses including lectures and demonstration courses will be provided. It is hoped in this way the laity will be brought to an appreciation of the services of the physician in connection with maternity cases that the work may become more dignified and better paid.

There should be a State Committee of the Illinois State Medical Society on maternal and child welfare. There should then be appointed a subcommittee in all of the larger counties, or covering two or three counties. These committees should study the obstetric and pediatric needs of the various counties, and make recommendations as to what action might best be taken to improve obstetrical standards in that community. There should be an annual joint meeting of these maternal and child welfare committees in connection with the state meeting to consider problems of mutual interest.

It is hoped that this program can be carried out in 1937-38 with the fullest cooperation of all of the groups interested.

PROBLEMS OF A HEALTH OFFICER IN A TOWN OF 40,000 PEOPLE

H. O. COLLINS, M.D.
Public Health Officer
QUINCY, ILLINOIS

Prior to 1920 the Board of Health consisted of the mayor, two aldermen and two physicians appointed by the mayor. Preceding this Board, the mayor appointed a Board consisting of the chief of police, two aldermen and two physicians. Prior to that time the Board consisted of three aldermen appointed by the mayor.

The secretary of the Board was the clerk of the police department, and the mayor each year appointed a sanitary officer who often had no knowledge whatever of public health work.

In those years there were frequent epidemics of communicable diseases and in one year there were as many as 340 cases of smallpox and 97 cases of typhoid fever, that being the year 1902. There were 34 cases of smallpox and 18 of typhoid fever in 1903; 86 cases of smallpox and 25 cases of typhoid fever in 1905; 215 cases of smallpox and 18 cases of typhoid and 91 cases of diphtheria in the year ending 1918; and 82 cases of smallpox, 14 cases of typhoid and 40 cases of diphtheria in 1919.

Repeated requests from citizens to the City Council for larger appropriations and a more up-to-date health department always received little or no support. The Rotary Club and citizens generally became alarmed and there was much criticism of the failure of the City Council to view the conservation of the public health as a matter of greatest importance and in need of far more attention than had been accorded it in the past.

At a meeting of the City Council, which in Quincy's case also acts as the Town Board—City and Town being co-extensive—Alderman Perry Ellis introduced the following preamble and resolution:

WHEREAS, There has been some criticism in certain quarters relative to the fact that a larger appropriation for health purposes was not made; therefore,

Be it Resolved, That the public attention be called in ample time to the fact that under an enactment of the General Assembly cities and townships can be organized as Health Districts and a tax for health purposes may be imposed up to the amount of four mills by submitting the question on petition to the vote of the people which can be readily done, and decided by the people prior to the making up of the next budget.

This resolution was adopted by a vote of 13 to 1.

The public promptly followed the advice given in the resolution and shortly after funds were raised by public subscription and petitions were circulated by many citizens.

The petition was filed with the City Clerk and Ex-Officio Town Clerk and the proposition placed upon the ballot, and at the town election held April 6, 1920, the proposition to erect the Town

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of Quincy into a Health District carried by a majority of 41 votes.

The first Board, consisting of the Supervisor-at-Large, Assessor and Town Clerk, was promptly organized and the district was given the corporate name of the Quincy Public Health District of the Town of Quincy.

The Public Health Department was organized in 1920 and, to avoid a duplication of activities because of the term of the old Board of Health not expiring until the Spring of 1921, the new Health Department then took full charge of the conservation of health in the City of Quincy. A physician was appointed public health officer at $4,500 a year and he selected his staff.

The powers and duties of public health officers are as follows:

1. To be the executive officer of the board of health;

2. To enforce and observe the rules, regulations and orders of the State Department of Public Health and all state laws pertaining to the preservation of the health of the people within the public health district;

3. To exercise the rights, powers and duties of all township boards of health and county boards of health within the public health district;

4. To execute and enforce, within the public health district, all city, village and incorporated town ordinances relating to nuisances, public health and sanitation;

5. To investigate the existence of any contagious or infectious disease within the public health district and to adopt measures, with the approval of the State Department of Public Health, to arrest the progress of the same;

6. To make all necessary sanitary and health investigations and inspections within the public health district;

7. To establish a free dental clinic for the benefit of the school children of the district;

8. To give professional advice and information to all city, village, incorporated town and school authorities within the public health district in all matters pertaining to sanitation and public health;

9. To devote his entire time to his official duties.

The public health officer also acts as registrar for the District on appointment by the State Health Director, and is allowed such deputies as needed.

As the old Board of Health continued to function until the Spring of 1921, the new Health Department did not begin its activities until that time. Since a levy of one mill tax was made when they organized in 1920, the new Health District had about $28,000 on hand when they were ready to take over the job. This was a fortunate thing for them, as they were able to secure office rooms in the Majestic Building, where they have been up to the present date. They were also able to secure office equipment, pay all bills for the year as due and a neat balance was left for any emergency.

The first Public Health Officer appointed by the Board was Dr. John W. H. Pollard (now of Evanston, Illinois), and much credit is due him for getting the department off on the right foot.

Among the powers and duties of boards of health under this act is to appoint, upon the advice of the public health officer, such nurses, chemists, experts, clerks and assistants as the public health officer may deem necessary; to establish, equip and maintain suitable offices, facilities and appliances for the health officer and his assistants; to pay from the "public health fund" the salary of the public health officer and the salaries of his appointees and employees and all other expenses pertaining to the department, including therein the expense of administering the sanitation and health laws and ordinances.

Under this act our board of health is annually required, before the first day of August of each year, to transmit to the County Clerk a certificate signed by the Chairman and Treasurer, setting forth the rate or percentage of such taxes by them, levied for the purposes herein provided and it shall be, and is made the duty of the County Clerk to whom such certificate shall be transmitted, to set down in the general tax warrant of the year for the collection of state and county taxes, in a separate column to be styled a "public health tax." Our board of health, as required by this act, holds an annual meeting on the second Tuesday in April of each year, at which meeting officers are elected for the ensuing year. They are also required to hold meetings quarterly on the second Tuesday of January, April, July and October. On the first Friday of each month, the board meets to pay salaries and

bills. Special meetings can be held at any time upon written request signed by two members and filed with the Secretary.

Almost immediately after the new health department got under way, the health officer succeeded in securing a complete equipment from the State Health Department for a venereal clinic. The State also allowed $100 per month to a local physician to treat such cases as were sent to the clinic. This continued during the time Dr. Pollard served as health officers. After four years here, the doctor resigned to accept another appointment at Evanston, Illinois.

The next health officer was a sanitary engineer, but, as he was not a physician, he failed to make a success of the venture. One of his first acts was to abolish the venereal clinic. This raised a storm of protest from the public in general. He was not at all satisfactory to the physicians here. They demanded that a physician be appointed who could see their side of the case as well as the public's. He remained about ten months.

Dr. Rhodes, from somewhere in Tennessee, was next appointed. He remained five years. During his term here there was such strong pressure brought on the Board by business men, union labor circles and others to reopen the venereal clinic that the Board again took the matter up with the State Health Department for a return of the venereal equipment used before. The State Department refused, stating that they had furnished the equipment once and they could see no good reason for again returning the outfit and perhaps in a short time have it sent back.

The Board then decided to purchase their own equipment and it was with the understanding that the health officer would take charge of the clinic that this was done. Only indigents, cases from the county jail, house of correction, police department and cases referred by local physicians of our City are taken care of by the clinic. Tuesday and Friday afternoons are set aside by the health officer for such cases. We are at the present time treating from 75 to 80 cases per week.

I was appointed health officer in 1931 and since that time there has been a gradual increase in venereal cases. I presume this has been due to the depression, when the patients who formerly could pay for treatment were unable to do so and, as a last resort, came to us. As conditions in general are improving, I think I can see a gradual decline in the number of cases calling on us for treatment. Our annual report for the year ending April 1, 1937, shows 253 individuals made 3,911 visits to our clinic for treatments, examinations, Wassermanns and smears.

Dental Clinic Division: When this division was first instituted, a few dentists of our City volunteered their services and would work certain hours each weekday; however, this did not prove satisfactory. We now employ a dentist (Dr. L. P. Spann) for part time. He works in the dental clinic each weekday from 8:30 A.M. to 12:00 noon. Only school children are entitled to the benefits of this clinic, which is free to all children attending school in this health district. During the year ending April 1, 1937, 1,333 individual children made 4,176 calls for examination, dental operation or advice.

Our Nursing Problem: For many years there has been an institution known as "Cheerful Home" which is kept up by donations from private sources. They have public health nurses on their staff. Of course, they make house to house visits as needed, and one nurse is connected with some large insurance company. Now, of course, these nurses are doing a great deal of good, but they do not fit so well in our program.

The schools of Quincy want nurses, but say they cannot pay for them. We have wanted publice health nurses ever since I assumed the duties of public health officer. For various reasons we have never been able to get nurses until this year.

The Board of Health has endorsed my recommendations for three certified public health nurses and the State Department has offered us the services of a public health nurse for a period of eight to twelve months to act as supervising nurse. The program is to be one of school and generalized nursing. With the aid of these nurses we hope to get not only school children, but pre-school children as well, vaccinated for smallpox, immunized against diphtheria, etc. Much of their work will be educational in character. They will report for duty about August 15, 1937, and have a program planned by the time school opens in September.

Our present personnel consists of the following: Public health officer and registrar, deputy registrar and secretary, sanitary officer, sanitary inspector, director dental clinic (part time), district bacteriologist (part time), and clinical as-

sistant. To this list we can now add three public health nurses.

Now, in regard to our tax levy we have been very fortunate. We have only been required to levy a one mill tax on two or three occasions when we had some extra expense to meet. One-half mill or five cents on the hundred dollar's valuation has been the usual levy.

Three years ago we had accumulated enough surplus that we were able to skip a levy for one year. Of course, with the three nurses added to our personnel we will be required to levy a one mill tax in the future. This is only 10 cents on the one hundred dollar's valuation.

In my opinion, the advantages of this health district are as follows:

1. The tax for operation of the health district is so small that it is not a burden to the taxpayer.

2. It gives sufficient funds to have a health district satisfactory to all. I do not believe our people would ever think of going back to the old way.

3. It is practically out of politics.

My relation with the Board has always been most congenial. Any matters referred to them are promptly turned over to me for settlement.

Having practiced medicine here for many years before taking over the duties of health officer, I am familiar with the doctor's as well as the health officer's side of questions coming up and, consequently, I receive full cooperation of our physicians at all times.

It is my constant endeavor to follow to the letter all instructions sent out by the State Department of public Health.

In closing, I might state that, while the result of the vote for this health district only carried by 41 votes, I feel sure if an election were held now it would carry by several thousand.

DISCUSSION

Dr. Warren F. Pearce, Quincy: I shall make my remarks from the standpoint of a practicing physician rather than that of a health officer. Dr. Collins brought out the fact that when the Quincy Health District was formed, the election was carried by only forty-one votes. However, I am sure that if the question were to be voted upon now the result would be almost unanimously affirmative. I feel equally certain that I express the sentiments of the physicians of Quincy when I say that we are exceedingly pleased with the new arrangement. Prior to the establishment of the health district, we had a so-called board of health but really this board was, in no sense of the word, a health department. We now have a well functioning department of health and we, as physicians, are very happy that the change was made. The fact that our health officer, Dr. Collins, is a former practicing physician and has the ability to look at questions from the physician's viewpoint, as well as that of a health officer, is of no little help in maintaining the pleasant relations which exist.

It would probably be desirable to have even a slightly higher tax in order to provide statistical data of value and broaden the scope of the work done by the department.

The employment of nurses will prove to be of much value in the prevention of communicable diseases, especially in the field of case finding.

The venereal disease clinic has been of great value to the community in that many cases have been treated which would otherwise have been neglected. The clinic has also been of value to the physician because it has relieved him from the care of venereal patients that were unable to pay for medical services. Undoubtedly, the adequate treatment of these patients has lessened the dissemination of infection.

Without question the establishment of the Quincy Public Health District has been of great value and I can think of no reason why other similar cities would not establish such a plan.

ENDOMETRIOSIS

Fred O. Priest, M.D.

CHICAGO

Definition. The lining of the uterus is composed of a sheet of embryonic connective tissue containing many simple tubular glands lined with a characteristic columnar epithelium. This lining, called endometrium, undergoes definite cyclic changes during the entire reproductive period. Ectopic islands of tissue similar in structure to endometrium and responding to the same stimuli are spoken of as endometriosis. These aberrant growths have been described on all important structures lying between the umbilicus and the vulva. A varied nomenclature has arisen because of the wide distribution of these lesions. Endometriosis is a general descriptive term suggested by Sampson to describe the gross appearance or location of an individual lesion. Unfortunately the nomenclature of some of the most common lesions has become complicated by individual writers applying their own descriptive terms to previously described lesions. As an example, let us take the terms "chocolate

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cyst of the ovary," "Sampson cysts," "perforating cysts of Sampson," and "endometriuma of the ovary." All of these are used to describe the same growth.

History. In the middle of the nineteenth century Rokitansky reported these adenomatous growths and in 1861 he described the invasion of the uterine wall by endometrial-like glands, thinking it on an inflammatory basis. Von Recklinghausen, in 1896, gave us the most valuable early description. He demonstrated ciliated cylindrical epithelium in one of the growths. Cullen in 1896 described the first adenoma outside the uterus, an adenoma of the round ligament, and soon afterwards described a diffuse invasion of the uterine wall (adenomyosis). Since 1918 Sampson has written much on this subject, suggesting the term "endometriosis", and offering the theory of origin from mature uterine or tubal mucosa. His original contributions have stimulated much interest and many case reports have followed.

Etiology. No one theory is universally accepted as the etiological factor of endometriosis.

1. *Theory of embryonic rests.* Since the epithelia of the genitalia and the peritoneum arise from the celomic mesothelium, it is reasonable to believe that misplaced rests might later, under proper stimulation, give rise to ectopic growths. Because of the proximity of the Müllerian tract and Wolffian body during embryonic development, one can readily see how anomalies might appear in the final structures into which the tracts develop. This theory does not explain endometrial-like growths in the bowel, about the umbilicus or in postoperative scars after the uterine cavity has been opened.

2. *Theory of Invasion.* Cullen conclusively proved that the mucosa lining the uterine cavity may invade the uterine musculature. By serial section he was able to trace the connection between glands deep in the myometrium and this lining of the uterus. This benign invasion may be compared with that of adenocarcinoma of the corpus. Anything disturbing the equilibrium between the endometrium and myometrium might stimulate such an invasion. Much earlier Chiari pointed out this invasion of the horn of the uterus by the tubal epithelium with node formation. He thought the inciting factor of the invasion to be inflammation, but this is not generally accepted.

3. *Theory of Implantation.* The menstrual debris has been proved to contain living epithelial cells and stroma. These have been kept alive experimentally both in culture media and by transplanting them into various organs of the host. This experimentally produced endometriosis responds to estrus, pregnancy and to hormone injection just as does the endometrium within the corpus, and as do adenomyomata that have developed spontaneously. Sampson pointed out that endometrial debris may be found in tube lumina and that patients operated upon during or just after the period often have blood at the fimbriated end of the tubes and in the posterior cul-de-sac. Especially is this true with retroversio uteri. He coined the term "endometriosis" and suggested this retrograde menstruation as the etiology of growths within the peritoneal cavity. Later he has included transplantation of endometrium during surgical operation where the uterine cavity is opened.

4. *Theory of Metastatic Development.* Viable bits of endometrium have been found in the veins of uteri removed during menstruation. Undoubtedly the uterine veins are dilated and opened up during gestation and during surgery. The question then comes up, Why the peculiar sites of metastases, if this be an etiological factor?

Frequency. Endometriosis occurs in women during menstrual life. A few cases are reported after the climacteric but they undoubtedly developed earlier and were discovered incidentally at that time, or where the growth is extensive, may produce their first symptoms, as obstruction when retrogression begins. A few cases are reported under twenty years of age. The majority, however, occur between thirty and forty years of age. The reports of incidence vary greatly, being naturally higher from the gynecologists than from the general surgeons because the former search more diligently for the evidence of endometriosis. Many small lesions are often overlooked. Sampson's estimate that 10 to 20% of women having laparotomies for pelvic disease have some evidence of emdometriosis we believe to be conservative.

Sites of Growths. Some authors choose to divide the condition into internal and external

endometriosis. The former includes the subbasal growths just beneath the endometrium, diffuse involvement of the myometrium, discrete localized adenomata within the wall, and the "isthmic nodes" about the interstitial portion of the tubes. External growths refer to growths within the tube, surface implants on the ovary, chocolate cysts of the ovary, peritoneal involvement below the umbilicus (appendix, bowel, ureter and bladder), adenomyoma of the uterine ligaments, rectovaginal septum, or within abdominal scars.

Symptomatology. Because of the combination of lesions possible in this condition, the symptoms must of necessity vary much, depending upon their location and extent. It is of interest to note that rather extensive involvement may at times produce few if any symptoms, while again relatively small lesions may produce symptoms suggesting an acute abdominal crisis.

The symptoms most commonly encountered are: first, pain; second, irregular bleeding; third, dyspareunia; fourth, backache, and fifth, disturbance of bowel or bladder function.

Analyzing the symptom of *pain* in endometriosis we find that its character depends not only upon the location of the lesion but that it varies with the cyclic changes taking place in this displaced endometrial-like tissue. The most characteristic general type of pain is that of an acquired dysmenorrhea which appears at the time of premenstural congestion, reaches its height with the onset of the flow, then gradually diminishes as congestion recedes. This discomfort is of a dull aching type often described as that of fullness or distention and is frequently not relieved by the usual remedies used for dysmenorrhea. Since these lesions occur most commonly in the dependent portions of the pelvis, *backache* is a frequent form of discomfort. The resultant congestion and tissue reaction of surrounding structures are probably responsible for that pain which often radiates down the thighs simulating sciatica. In like manner, involvement of the anterior rectal wall or the rectovaginal septum produces discomfort when the rectum is distended either by gas or fecal material. Less frequently is the peritoneum over the bladder involved with its consequent urinary disturbance. One of the most distressing forms of pain is that of dyspareunia occurring when the rectovaginal space, posterior fornix or sacrouterine ligaments are involved.

Menstrual irregularity is a common accompaniment of this condition. This irregularity may take the form of polyhypermenorrhea, oligomenorrhea, metrorrhagia or relative amenorrhea. When increased blood loss occurs it is often out of proportion to the extent of the lesion. This increased blood loss is at times explainable by co-existing pathology, such as fibromyomata but often must be explained, we feel, on a hormonal basis.

Diagnosis. The diagnosis of endometriosis can usually be made by a painstaking analysis of the onset and course of the pain and menstrual irregularity plus a careful abdomino-rectovaginal examination of the pelvis. At times a probable diagnosis is arrived at on history alone in the absence of palpatory findings. More frequently, however, one or more of the following findings aid us in establishing a diagnosis. First a nodulation, beading or puckering of one or both sacro uterine ligaments. This puckering often involves the posterior fornix or the rectovaginal space. Less frequently the diagnosis is established by seeing blue domed cysts in this puckered area of the vagina. These lesions, because of their perforating and adhesive properties, often fix the uterus in retroversion. Moderate enlargement of one or both ovaries with fixation presenting the above history suggests endometrial involvement. Uniform enlargement of the uterus, particularly when associated with a sudden gushing type of bleeding or undue premenstrual tenderness, suggests adenomyosis. Vicarious bleeding coincident with the menstrual period from any of the hollow organs of the pelvis, or abdominal scars, or sinuses in the abdominal wall is pathognomonic of ectopic endometrial tissue.

When a pre-operative diagnosis has not been made and symptoms are absent, the finding within the pelvis of these plum colored lesions with puckering of the surrounding peritoneum warrants a gross diagnosis. Cutting into these lesions often reveals chocolate to tarry colored fluid. Final diagnosis should not be made, however, until microscopic evidence is available.

Treatment. The treatment of endometriosis may be divided into surgical and irradiation. The choice of method is most important because these patients are, for the most part, in the child-

bearing age and preservation of function is of the utmost importance. Particularly is this true since relative sterility is a common accompaniment of this condition.

Because of the dense adhesions and perforative tendency of these lesions surgical treatment may become a very difficult and destructive procedure. This is especially true of the ovarian lesions and it is in these organs that we feel conservation is most essential. It is well known that casteration produces a cessation of symptoms and a regression of the lesion, but we think that this should be reserved for those few cases in which the lesions are so widespread or are so intimately connected with important organs that surgical resection is impossible or is deemed unwise. Conservatism is, of course, less important in women near the climacteric. If for any reason operative treatment is contraindicated and symptoms are sufficient to demand treatment, regression can be accomplished by castration irradiation, preferably by x-ray.

I shall point out the gross and microscopic pathology of the various lesions in discussing the lantern slides.

55 East Washington Street

DISCUSSION

Dr. George W. Stephenson, Bloomington: It seems to me that Dr. Priest has given us a clear and concise presentation of a subject which has interested physicians since abdominal and pelvic surgery became commonplace. In discussing his paper there are several points of especial interest which I should like to call to your attention.

While it makes little difference in the care of the patient, the large numbers of adherents to the various theories of the etiology of this condition are evidence of the absence of really conclusive proof as to its mode of origin. In addition to the three theories of embryonic rests, invasion and implantation, it is only fair, perhaps, to mention that the theory of serosal metaplasia has many adherents, particularly among the Germans. Inbrief, this theory claims that by some undetermined exciting factor the serosa of the pelvis undergoes a change from its rather low grade differentiation into highly differentiated epithelium, which then invades the underlying structures. This theory was strongly supported in this country by Dr. Novak as late as ten years ago. It might explain some of the tumors under discussion which are found in positions difficult to explain by the implantation theory of Sampson, such as those along the round ligament, in the vulva, and low down in the rectovaginal septum, but it has the disadvantage of not explaining why similar conditions are almost never found above the umbilicus.

There is no question but what the majority of men who see pelvic surgery frequently, cannot help but reason, as Sampson did, that these growths must usually be implanted on the peritoneum by way of the tube from the body of the uterus. This is further supported by the fact that in one of his papers Sampson reported 250 cases with patent tubes in 257 cases of peritoneal endometriosis, and that in those animals which do not menstruate there have been few cases found with similar tumors. The possibility of transplantation has been proved beyond question of a doubt by several individuals.

In discussing the diagnosis, Dr. Priest might have mentioned more fully the amazing number of adhesions which may be formed around these endometrial transplants, particularly when they occur in the ovary, so that at first glance the surgeon is hard put to it to decide as to whether he is dealing with endometriosis, a mass of inflammatory adhesions, or an ovarian carcinoma. The finding of bluish, tar-containing cysts will often clear up this matter at the table without waiting for a diagnosis of the tissue by the pathologist. It is my impression that except in those cases where cysts are seen protruding into the vagina, or into an abdominal scar or sinus, that the diagnosis is almost always made after the abdomen is opened.

The question of treatment has been well presented, the outstanding point being that conservatism is the keynote. This is true because these cysts are usually very slow growing, and while they are invasive, they probably do not become malignant, although coincident malignancy may occur in the same organ. I believe that if the condition is incidental, and the cysts are small, in a patient nearing the menopause, that a waiting attitude may be adopted. In the same patient if the cysts are of sufficient size to cause symptoms in themselves, particularly those of obstruction to the bowel, or partial occlusion of the vagina, and removal is formidable, certainly it would be justifiable to remove both ovaries, since these tumors definitely retrogress after the menopause, whether it be natural or artificial. In a young woman every attempt should be made to preserve ovarian function, unless the growth is causing severe symptoms and is in a place where its removal would require more extensive surgery than would seem justified.

Dr. Fred O. Priest, Chicago (closing): I intimated the inclusion and serosal theory of development in stating that the pelvic peritoneum and epithelium of the genitalia arise from the celomic mesothelium. Certainly no theory will explain all types of development. I must insist that endometriosis may be diagnosed without the presence of blue dome cysts in the vagina. I have seen these cysts only once and I have seen hundreds of cases of endometriosis. Certainly the diagnosis will be easier if one sees mucosal thickening and puckering. Very frequently there is thickening of the sacroiliac ligament. Recently I had a patient who came in with symptoms listed as if she were reading them out of a textbook. She had extensive involvement, excruciating pain when the rectum contained feces, pain on bowel movement, and pain on coitus.

MALARIA WITH SPECIAL REFERENCE TO NARCOTISM

Italo F. Volini, M. D.
William W. Shapiro, M.D.
CHICAGO

This report is prompted by three main reasons: the first purpose is to direct attention to the pronounced increase in malaria as indicated by the records of the Cook County Hospital, with especial reference to malaria in addicts. Secondly, it is the aim in this paper to discuss the clinical picture of malaria in addicts, pointing out the probable causes for the atypical manifestations which cause marked delay or even mistakes in diagnosis. Thirdly, negligence of continued treatment constitutes a menace as far as malaria spread is concerned, and the factors involved should be given more study with strict permanent supervision of malarial addicts.

Malaria is considered relatively uncommon in Chicago, being rarely seen in private practice. Yet at the Cook County Hospital, in one medical ward, we treat from ten to fifteen of these patients each year.

From January, 1925, to March, 1933, an eight year and two months period, there were 179 malarial admissions as reported by Eaton and Feinberg.[1] The statistics of these investigators reveal a number of interesting features: of the total number, 23 patients were narcotic addicts; or 12%; there were 22 men and one woman; three had been readmitted on two occasions. Only two of the narcotic addicts could have acquired their disease in the South; 112 of the non-addicts had given a pertinent history of being in the South; 38 of the non-addicts had never been South; and these acquired the disease only in the months of July to October, while the drug addicts acquired the disease at any time of the year. The prevalent organism in the entire group was the plasmodium vivax.

The report of Eaton and Feinberg was the first in this country describing a large series of malaria patients in which there was a great incidence of narcotic addiction. Geiger[2] treated six patients with tertian malaria, five of whom were morphine addicts. Four of these had tertian, and one, the quartan type of infection. Similar reports were made in this country by Nickum,[3] Applebaum and Gelfond[4], Helpern[5], Bradley[6, 7], Himmelsbach,[8] and Faget.[9] In Egypt, Biggam,[10] described ten heroin addicts who subsequently developed a malignant tertian malaria. A larger series of such patients was subsequently mentioned by Arafa.[11]

One hundred and twenty-four patients have been admitted to the County Hospital from March 14, 1935, to April 15, 1937. (Table I.) This is a large number by comparison with the series of Eaton and Feinberg, who mention 179 admissions in a period longer than eight years. Of the 124 patients, fourteen were children under fifteen, six boys and eight girls; of the 110 adults, 24 were women and 86 men. Several of the patients had been in the hospital more than once, making a total of 136 admissions. Thirty-two patients, 27 men and 5 women, were colored. The average ages ranged between twenty and thirty.

Table 1

Total No. of Admissions March 14, 1935 to April 15, 1937	136
Total No. of Patients from March 14, 1935 to April 15, 1937	124
No. of Men	86
No. of Women	24
No. of Children under 15	14
Total No. of Addicts—45; Men	38
Women	7
Addiction in Total Series	36%
Addiction in Total Adult Series	41%

Narcotic addiction was present in 45 patients, 41% of all the adults, and 36% of the entire group. The addicts numbered 83 men and seven women. Twenty-one of the colored people were addicts, and, as there were only thirty-two colored in the entire series it is evident why the presence of malaria in a colored adult makes us strongly suspicious of narcotism. (Table 2.)

Table 2

	Men	Women	Total
White	59	19	78
Non-Addicts	39	15	54
Addicts	20	4	24
Colored	27	5	32
Non-Addicts	9	2	11
Addicts	18	3	21

	Percentage Addiction
White	31%
Colored	65%

The source of the malaria in the colored who were not addicts could not be definitely determined.

From the Cook County Hospital, Chicago and the Department of Medicine Loyola University School of Medicine.
Read before Section on Medicine of Illinois State Medical Society, May 19, 1937, at Peoria.

The narcotic usually employed by our patients is heroin, which corresponds with the experience of others.[4, 10] Morphine is also frequently used. It is not uncommon for many of the patients to take more than one narcotic, many using three or four. Particularly is this true in the 'pleasure addicts' who may have sampled laudanum, cocaine, morphine or heroin. Twenty-nine of our patients used heroin alone; four used morphine and heroin, three used heroin and cocaine; nine used morphine alone. The diagnosis of narcotism in a few of the more severely ill was based upon the presence of thickened, sclerotic veins in the cubital region, with the numerous scars from needle punctures in the overlying skin.

In our entire series there were twenty-eight patients in whose blood the aestivo-autumnal parasite was positively demonstrated. Twenty-two of these twenty-eight were narcotic users, representing over 50% of the addicts. Two patients with aestivo-autumnal malaria were children who had acquired the disease in a children's camp at a nearby Wisconsin lake. Two patients, non-addicts, acquired aestivo-autumnal malaria while in the South. Two aestivo-autumnal sufferers entered the hospital in moribund condition, dying within twenty-four hours, so that no history was obtained. The series of Applebaum and Gelfon[4] were made up entirely of the aestivo-autumnal type. Eaton and Feinberg[1] do not mention the occurrence of austivo-autumnal fever. This form of malaria is considered essentially foreign to the Chicago region.

In the other patients, plasmodium vivax was demonstrated in thirty-two; in sixty-four the parasites were found but the type was either not mentioned or was not definitely determined.

A history of having been in the South was given by fifty-one patients. Four of the addicts had been South, but only one, apparently, could have acquired this illness in the course of his travels. A large number became ill after a visit in Southern Illinois, especially around the Springfield sector. Arkansas and Southern Missouri were other important sources. In the other patients, no history of travel was obtained. Malaria followed blood transfusion in one instance. Another patient had received malaria during treatment of general paresis. In twenty-four patients, the source of the infection remained undetermined.

The seasonal incidence of the disease in our group is very interesting. Fifteen patients were admitted in June; seventeen in July; thirteen in August, and thirteen in September, accounting for only 42% of the total number. Most of the patients were seen during the colder months of the year. There is an evident lack of relationship between seasonal incidence and onset of symptoms in the narcotic group.

The mortality in our entire series was nine per cent; no deaths occurred among the children; eight of the eleven deaths occurred in addicts, four of them were colored; eight of the patients who died were in the hospital twenty-four hours or less; two lived forty-eight hours; one patient lived four days; another five days. (Table 3).

TABLE 3 *Mortality Table*

Total Deaths.....11 or 9%

	Men	Women	Total
White	6	1	7
Non-Addicts	3	0	3
Addicts	3	1	4
Colored	3	1	4
Non-Addicts	0	0	0
Addicts	3	1	4

Percentage Death

	Whites	Colored	Total
Addicts	16%	20%	18%
Non-Addicts	5%	0	4%
Total Deaths	11	..	9%

These patients were all admitted to the hospital in very poor condition, and in only one instance might death have been avoided by more astute diagnosis. In the experience of most investigators,[5, 6, 10] the combination of narcotism and malaria is attended by a very high mortality. The improvement made by some of the patients, particularly a few of the narcotic habitues, was very surprising. Many developed typical cerebral malaria, yet responded brilliantly to ordinary quinine therapy. Their average stay in the hospital was between nine and ten days.

The onset of malaria in the addicts is in most instances directly referable to a specific injection of the offending narcotic, usually at a recent date. As a rule, there may be two or more patients in the hospital or in the same ward simultaneously, who were present at the same celebration where each received his plasmodia. These individuals are often well acquainted and identify one another very readily.

The narcotic addicts acquire malaria in a very interesting manner. They usually will readily convey whatever information is desired, espe-

cially when they have recently had their drugs. Most of them are very poor, and pool their meagre funds in an effort to obtain the drug, two or more individuals making up a party. Some of these parties may consist of as many as nine or ten people, usually men, but sometimes men and women. A patient with latent or active malaria will be present at one of the big parties and whosoever follows him in the order of injection will become ill.

The syringe effect is usually obtained with an ordinary medicine-dropper in this manner; a small piece of paper, or better still, a rubber-band, is fastened about the tip of the dropper, serving as a means of holding an ordinary Luer needle in place. Only the more affluent possess hypodermic syringes. The narcotic is dissolved in a minimum amount of water and is usually placed in an upturned metal bottlecap. Only occasionally a lighted match is applied underneath to produce a sterilizing effect. Sometimes the fluid is drawn into the dropper through a cotton filter, the needly is attached, and each guest then receives his portion—all using the same needle and dropper. Although the injection is often subcutaneous, many receive intravenous injections in the cubital fossa. Tourniquets are made with handkerchiefs, and the injections are made with great skill.

One of our patients who had been using different types of narcotics for the past five years stated that many of his conferees had acquired malaria. Another patient, a heroin addict for twenty years, had ten days previously exchanged syringes with a woman who had been very ill with fever for two weeks. The woman was brought to the hospital on the following day and died very shortly after admission. The mother of one boy said that her son had purchased 'ink' from three men who had died recently of malaria, and that two other customers of these men had also died recently. Descriptions such as the foregoing are very common.

Although transmission from an active patient is a certain method of acquiring the disease, we have noted that the possibility is not remote of acquiring it by the injection of blood from individuals who are not known to have malaria. In one of our patients, a child aged eleven, a blood transfusion was given following a severe trauma; her father was the donor. Shortly after the transfusion, the child developed a severe tertian malaria, and it was subsequently found that the father had had malaria twenty-five years previously in Asia Minor—his health having been perfectly good during the entire interval. The literature is replete with many similar references:[12, 13, 14, 15, 16, 77,] Jankelson[18] mentions the development of malaria in a child given a transfusion from his father, the latter having contracted malaria forty years previously. In most of the instances the donors, either had long since forgotten about their previous illness, or, having been in malarial infection regions, never remembered being ill.

Variations from the ordinary clinical pictures of malaria are frequently noticed in narcotic addicts. These are due to a number of causes. First, atypical syndromes occur because of the frequency of the aestivo-autumnal type of infection. Second, addicts may give a history of four or five intravenous injections of the drug daily so that maturation of the plasmodia thus occurs at irregular intervals or continuously. This may probably also account for many of the serious cerebral forms of the disease. Third, the inadequacy of surgical sterilization tends to increase white blood counts, and a fourth cause is the too prevalent attitude which is encountered of administering aspirin or other antipyretics before diagnosis is made, thus altering the fever curve.

The incubation period of man-made malaria will often produce confusing pictures. Ordinarily, symptoms will appear within two weeks of injection. In a number of our patients the incubation period has appeared to be as long as six or eight weeks. In a few, the interval between the injection and the onset of symptoms was so great that a definite correlation of the two factors could not be readily established.

The diagnosis of malaria is often facilitated by the leucocyte counts which are usually seven thousand or less. Some counts, however, are unusually high,[5] and in malaria patients are often associated with pulmonary findings. Fifteen of our patients had leucocyte counts higher than 10,000, and in five patients they were 32,000, 18,000, 16,000, 23,000 and 20,000, respectively. In one patient, with a 23,000 white count, the peripheral blood did not seem to reveal presence of parasites and the leucocytosis was a stumbling

block in the diagnosis. This patient was studied carefully, but the scars she had in her cubital regions were overlooked, or, if noticed, were not properly evaluated as to their significance. A high leucocytosis seemed to tentatively rule out malaria. The anatomical diagnosis was: aestivo-autumnal malaria; sclerosed cubital veins probably due to frequent injections of narcotics.

One does not think of malaria as a disease common to this part of the country. Any patient, therefore, who presents the more unusual manifestations of a prolonged febrile disease may present a confusing problem in diagnosis. This is all the more evident when one realizes that the finding of the parasite in the blood stream is sometimes difficult. Few or no parasites may be present on any one slide. The preliminary blood examinations are made by internes, who, all too often, are not familar with the plasmodia forms.

The demonstration of parasites in the blood stream must be made in those patients who come under observation before a positive diagnosis of active malaria is made. Careful checks are made and invariably no treatment for the febrile condition is given, unless the patient is in extremis, until the diagnosis is definitely made. Where suspicion of malaria is aroused, adrenalin is sometimes given to produce an influx of parasites into the peripheral blood. In our experience, this procedure is seldom effective.

A history of recent or late drug addiction as well as the presence of suggestive pigmentation and scaring in the cubital regions have been helpful in making a diagnosis. The use of quinine in making the so-called therapeutic test for malaria does not meet with our approval, for quinine, while having an almost magic effect in controlling the fever in malaria, is an excellent antipyretic in non-specific fevers. A sudden reduction of temperature, particularly when the parasites have not been found, which frequently occurs after quinine administration, will often becloud the diagnosis.

The stay of malaria patients in the hospital averages between nine and ten days. In an institution like the Cook County Hospital, two factors may prompt a rapid discharge of these patients. First, the wards are often crowded and the bed space is badly needed, so that after a patient has been fever free four or five days, he no longer seems to belong in a hospital, is sent out, and usually receives no further treatment. Second, the patients who frequent our institution, either become restless and have the wanderlust, or, more important, they may have a craving for drugs, which are not furnished in the hospital. After the discharge of the patient, a designation of 'improved' is usually found on the charts. Sometimes the charts may read 'cured.' Improvemennt of the severe symptoms has unquestionably occurred. We take exception to the word 'cure'. A period of treatment in the hospital ranging from one to two weeks is insufficient to cure even a small percentage of patients, and those who are drug-addicts are released to prey on their brethern. Any uncured malaria patient may under suitable circumstances be a menace to his community. Parasites can be harbored by an individual who has never had symptoms of the disease. We have mentioned where apparently healthy people have transmitted malaria through transfusion, and their malarial history will date back five to forty years with no appearance of cachexia or intercurrent illness.

We contrast the two reports from this institution: 179 patients in eight years from 1925 to 1933; 124 patients in the two years 1935 and 1936. Thirteen per cent of all the malarial admissions in the eight years were in drug addicts. In the last two year period 41% of the adult malaria patients were drug addicts. What then, can be the explanation for this increase? Malaria certainly never was an uncommon disorder, and drug addiction has certainly always been prevalent. A possible relationship between these two disorders was unknown twenty years ago, and yet every year since 1925, malaria in drug addicts becomes more frequent.

Several factors are probably operative. Most important, addicts now take their drugs in groups instead of individually. The reasons for this being first, the gregarious habits of the younger age addict, especially male negroes; second, the difficulty in obtaining the drugs; and third, the high cost of the narcotic. Again, this increase is coincident with the introduction of the malaria parasite by Wagner-Javregg in 1918 as a form of therapy for syphilitic paresis. This manner of therapy has become increasingly common. It is usually given only in institutions for the mentally deranged, which hospitals usually

harbor many drug addicts. The cured paretic may subsequently consort with the drug addict, or the latter may acquire the disease with the mosquito as the intermediary.

Artifically induced malaria as a public health hazard is discussed by Shaughnessy.[19] He describes an epidemic, with twenty-five patients in all, related to a hospital for the insane. Six patients had received their malaria by inoculation; eleven inmates, uninoculated, acquired malaria; six employees and two persons residing outside, but near the institution, were likewise afflicted. Mosquitos were found breeding in the vicinity. There may have been failure to completely cure the injected patient, although the continuous passage of parasites through human hosts is believed to cause the disappearance of the gametocytes.

In our patients, the aestivo-autumnal fevers, however, were definitely acquired through the use of the hypodermic needle and the thoroughly differentially gametocyte can nearly always be demonstrated.

Summary. Malaria has increased in Chicago during recent years. Narcotic addiction associated with malaria has become quite common and is a serious public health problem. Malaria with addiction has been much more severe than malaria alone. The mortality in our malarial addicts was 18%. The association of the two disorders occurs most commonly in young people and heroin is the drug most often used. The aestivo-autumnal type of fever is not uncommon. The presence of malaria in two-thirds of our colored patients is associated with narcotism.

The parasite should always be found and identified if possible. A high leucocyte count should not be permitted to confuse the clinical picture.

Sclerotic cubital veins or multiple puncture marks in the cubital region with or without a history should materially assist in the diagnosis of malaria.

Treatment of malaria patients does not continue for a sufficiently long period of time.

Strict isolation and insistence on a complete cure of malaria patients in mental hospitals should be enforced. Breeding places for mosquitoes near such institutions, should not be permitted.

A cause and effect relationship between the increasing number of malaria sufferers who are drug addicts and the advent of malarial therapy of the syphilitic insane is strongly suggested. A thorough examination of the blood smear should be the rule for all donors.

30 North Michigan Avenue

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DISCUSSION

Dr. W. W. Shapiro, Chicago: We feel that the rising incidence in the combination of malaria and narcotic addiction constitutes a very definite public health menace and that this combination gives rise to a very morbid clinical condition. We wish to emphasize in our series that there is a definite lack of seasonal incidence. As a matter of fact, most of our patients acquired their malaria during the winter months.

With regard to the transmission of malaria, I wish to emphasize once again the very important point in connection with the latency of malarial infection. Reference was made in this paper to one patient, a young girl of eleven years of age, who, following some

trauma, was given a blood transfusion with her father as donor. Subsequent course of events showed that this youngster had developed a typical tertian malaria and further investigation brought out the fact that the father had developed malaria twenty-five years previously while in Asia Minor, and he thought he was entirely cured; during this time no symptoms of malarial infection had appeared.

I wish to emphasize several very important points which were brought up in this paper with particular reference to the recurrence of clinical malaria. First, the examination of the blood smear. Much was made of the fact that at times it is very difficult to recognize the malaria parasite, particularly when the examination is conducted by interns who have had no special training in this subject. Another point is that the malarial parasite frequently resembles artefacts on the blood slide and is very easily overlooked. Sometimes it is quite as difficult to find malaria parasites on a blood smear as is the tubercle bacillus and one should be very cautious in obscure fevers in making repeated examinations of the blood smears before any conclusion may be drawn as to whether malaria is or is not present. The second point that I wish to caution you about is the too frequent use of quinine in the treatment of obscure, somewhat continuous fevers. Although quinine has a relatively magic action on the fever of malaria, it sometimes works quite well in the nonspecific fevers and the clinician is only too apt to conclude that he has been dealing with a malarial patient when a satisfactory response is made to quinine therapy.

GAS GANGRENE TREATED WITH SULFANILAMIDE: REPORT OF THREE CASES

Harold R. Bohlman, Baltimore (*Journal A. M. A.*, July 24, 1937), used sulfanilamide in the treatment of three cases of gas gangrene. It appears to be a valuable adjunct in this respect and offers great promise with regard to saving of limb and life. Patient 1 had received 10,000 units of gas combined bacillus antitoxin. His temperature rose to 102 F. on the second day and fluctuated in an irregular manner. Because of great distention, extensive infection and the patient's toxicity, amputation seemed to offer little hope. His prognosis was very poor. Sulfanilamide therapy was instituted on the fifth day, 5 grains (0.3 Gm.) every six hours. This dose was continued for two days, followed by two tablets every six hours for five days and then one tablet every three hours for an additional two days. Eighteen hours after the first dose of sulfanilamide the patient's temperature was normal, he had no toxic symptoms and he appeared quite well. Patient 2 had a temperature on the third day of 100.4 F., with a pulse rate of 95; marked crepitation of gas could be felt about and above the wound, extending to the lateral side of the knee. The wound was discharging hemolyzed blood. Sulfanilamide therapy was started, five tablets every four hours. The patient received 25 grains (1.6 Gm.) the third day (the first day of this therapy), 75 grains (5 Gm.) the fourth day, 30 grains (2 Gm.) the fifth day and 45 grains (3 Gm.) the sixth day, after which it was discontinued. His temperature ranged from normal to 99 F. plus until the tenth day and thereafter was normal. All toxic symptoms disappeared on the second day of sulfanilamide therapy. Patient 3 was admitted to the Union Memorial Hospital in a severe state of shock. She had been injured in an elevator accident in a hotel. As soon as her condition warranted, she was taken to the operating room and a guillotine amputation of the right leg was done under cyclopropane anesthesia at the upper third of the thigh. Amputation was performed above the fracture area; the stump was closed in the usual manner with two cigaret drains. She was immediately given prophylactic doses of tetanus antitoxin and combined gas bacillus antitoxin. Her temperature on admission was 99.3, rose to 102.2 the second day, and was 103.3 the third day, with a pulse of 140 per minute. A culture of the wound revealed Bacillus welchii. The leukocyte count was 18,000. Hemoglobin was 70 per cent. Sulfanilamide was administered, four tablets of 5 grains (0.3 Gm.) each with 10 grains (0.65 Gm.) of sodium bicarbonate every four hours, totaling 60 grains (4 Gm.) the first day, 85 grains (5.5 Gm.) the second day, 65 grains (4.3) Gm.) the third day, 40 grains (2.6 Gm.) the fourth day, 60 grains (4 Gm.) the fifth day and 40 grains (2.6 Gm.) the sixth day, after which it was discontinued. Her temperature remained elevated until the seventh day, when it dropped to 98 and ranged to 99.5, being normal after the twenty-fifth day. Her pulse remained around 100 to the minute. X-ray examination of the stump on the second day revealed gas pockets. The urine on the second day showed albumin 2 plus, sugar 1 plus and numerous byaline casts, but thereafter was normal. Quantitative determination of sulfanilamide in the blood on the fourth day revealed 8.4 mg. per hundred cubic centimeters. As soon as gas bacilli were discovered in the discharge on the second day, the sutures in the stump were removed; there has been some necrosis and sloughing. The wound is at present granulating and the patient is progressing well toward complete recovery.

THE VISUAL RAVAGES OF TRACHOMA

While the ravages and destructive influence of trachoma are well known, it would be difficult to say offhand how great percentally is the visual damage from that disease and how much that damage can be remedied by treatment. Therefore Harry S. Gradle, Chicago, and Walter de Francois, Harrisburg, Ill. (*Journal A. M. A.*, July 24, 1937), made an analysis of the records of 2,713 consecutive cases of trachoma seen in the Southern Illinois Trachoma Clinics. The patients were divided into several classes according to visual acuity for specific reasons. 1. Vision better than 20/50: In the total number of 2,713 patients there were seventeen with unilateral anophthalmos from one cause or another. Of 5,409 eyes 2,889, or 53.5 per cent, had visual acuity of better than 20/50 and consequently are not considered in the article. 2. Vision between 20/50 and 20/200: Of the total number of 5,490 eyes 1,596, or 29.5 per cent, had visual acuity between 20/50 and 20/200. The reduction in vision was

due to trachoma in 653, or 40.9 per cent. Under treatment, 250, or 39.8 per cent, improved to vision of better than 20/50. 3. Vision less than 20/200: Of the total number of eyes 924, or 17 per cent, had vision of less than 20/200. The reduction in vision was due to trachoma in 566, or 61.1 per cent. Under treatment, 177, or 31.2 per cent, improveed to vision of better than 20/200. 4. Of the 2,713 patients 211, or 7.8 per cent, had suffered a reduction in vision in the better eyes as the result of trachoma to less than 20/200 (industrial blindness). Under treatment fifty-five, or 26.1 per cent, of that number improved to vision of better than 20/200. These figures are not universally applicable, for trachoma varies in severity in various localities according to the character of the population, degree of sanitation, climate, temperature, humidity and racial resistance. The patients in these clinics are Caucasians who have been more or less inbred for more than a century, who are mostly country dwellers, and whose ideas of sanitation are rudimentary.

THE SPECIFIC DYNAMIC ACTION OF BUTTER FAT, AND OF SUPERIMPOSED SUGAR

J. R. Murlin, A. C. Burton, and W. M. Barrows, Jr. (Jour. Nutr. 12:613, Dec. 10, 1936).

The specific dynamic action (S.D.A.—increase in heat production over post-absorptive basal heat production) of butterfat taken as heavy cream was studied in nine human subjects by means of a new respiration calorimeter, supplemented by the Tissot-Haldane method. The test meal contained 80 to 171 gms. fat.

The average S.D.A. expressed as percentage of the fat calories fed was 4.74. No relation was shown between S.D.A. and age of subjects, but there was a relation to tolerance for fat or capacity to digest and completely metabolize the fat.

Sugar taken several hours after the fat meal produced two types of dynamic response, (a) complete summation to the fat metabolism and (b) an increase greater than that due to the sugar alone. The difference was reckoned as fat metabolism. This extra heat may be due in part to oxidation of ketone bodies.

MEDICAL COMPENSATION FROM LIFE INSURANCE COMPANIES

At the medical section of the American Life convention recently held in Colorado Springs in June Dr. Cragin, in his opening address, gave the results of a questionnaire from 197 companies in regard to the amounts paid the medical profession in the year 1936. For medical fees, plus compensation, plus accident and health and leaving out state insurance, automobile liability, self-carriers, contract practice, a large portion of group and industrial payments; the figure reached the stupendous sum of $70,386,097.42.

From reliable sources an estimate can be made of well over $100,000,000 paid by all companies for medical services in the United States. It was estimated that about $800,000,000 was paid for medical services by individuals in this same year, and it is also interesting to note that $360,000,000 was paid for patent medicine.

GOUT: THE MODERN DISEASE

A. Cohen. (So. Med. & Surg. 98:637, Dec., 1936).

Recent studies of joint diseases suggest that gout is as prevalent today as it was a century ago, and that 90 per cent of the cases are unrecognized. It occurs at any age, but is most common in the third decade of life, particularly among sthenic, or strong, active persons.

Symptoms are malaise, irritability, and ravenous appetite for several weeks, followed by numbness in the muscles and a sensation of heat in the joints. An acute attack may be polyarticular, with severe pain in the joints, with redness and swelling. Appetite is poor, urine is concentrated and scanty, and blood uric acid is usually increased.

Treatment is by rest and a low-purin diet, with daily administration of colchicine. Foods permitted include milk, cream, butter, cheese, eggs, white bread, rice, macaroni, sago, tapioca, cabbage, caulifiower, lettuce, watercress, fruit, sugar, honey, jam, jelly, marmalade, potatoes. Foods forbidden are tea, coffee, alcohol, fish, fowl, meat, glandular organs, brown bread, peas, beans. Such a regimen is reported as successful in the treatment of 25 cases over periods ranging from a few months to a few years.

Society Proceedings

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular meetings, Wednesday, October 13, 1937.

Program—"The Immunological Aspects of Syphilis," Illustrated with Lantern Slides. Charles C. Dennie, Kansas City, Mo.

Discussion—Francis E. Senear, Josiah J. Moore, James H. Mitchell.

PUBLIC LECTURE

Wednesday, October 27, 1937, "Modern Medical Charlatans," Dr. Morris Fishbein, Editor, Journal American Medical Association and Hygeia.

GREENE COUNTY

A Special Clinical Meeting of the Greene County Medical Society was held in the dining room of Hotel Lindsey at Carrollton, Friday, October 22, 1937.

Meeting was called to order at 7:30 P. M. by Vice-President, Dr. E. W. Thomas, regular order of business was dispensed with and Dr. T. B. Knox of Quincy was introduced. Dr. Knox is Councilor for the Sixth District. He gave us a brief talk in which he suggested a union of Jersey and Greene County Societies, also warned us of the various ways in which State Medicine is making a stealthy but sure advance.

By a unanimous vote of the Society the President was authorized to appoint a committee to confer with Jersey County relative to a union of the two organizations, said committee to report at December meeting in Roodhouse. Drs. Garrison and McLaren were appointed a committee.

Mr. F. A. Garner, Jr., of St. Louis representing Linde Air Products Company gave us a moving picture demonstration of various methods of administering oxygen which was both entertaining and instructive.

Dr. J. R. Compton of St. Louis was next introduced and gave us a brief but very practical paper on Oxygen Therapy.

Eleven members and five guests were present.

Wm. H. Garrison, Secretary.

Marriages

Emanuel M. Arnovitz to Miss Margaret F. Beck, both of Granite City, Ill., August 11.

Anthony C. Margliano, Joliet, Ill., to Miss Marcella Marguerite Coyne, in Chicago, July 15.

Marvin F. Weissman, Milford, Ill., to Miss Olive Maxwell of East Moline, recently.

Personals

Dr. Carolyn MacDonald addressed the Grundy County Federation of Women's Clubs at Coal City on October 12.

Dr. Margaret M. Kunde addressed the Woman's Club of Geneva on October 12.

Dr. Leon Unger and Marjorie Moore, Ph.D., discussed "Co-operative Studies on Hay Fever and Other Allergic Conditions," before the Chicago branch of the American Chemical Society, September 24.

Dr. H. E. Irish gave a paper on "Useful Drugs in Infancy," before the doctors of Coles-Cumberland, Clark and Douglas counties at Mattoon, October 7.

Dr. Robert S. Berghoff held a heart clinic for the doctors of Schuyler County at the Smith Memorial Hospital, Beardstown, October 6. A scientific program on Heart Disease was presented in the evening.

Dr. Paul H. Holinger gave a paper on "Foreign Bodies in the Air and Food Passages" and H. G. Poncher led a round table discussion on Pediatrics before the Knox County Medical Society, September 23, in Galesburg.

Dr. Noel Shaw presented a talk on "The Allergic Child," and E. L. Cornell spoke on "Management of Prolonged Labor," before the doctors of Lee-Whitside counties at Dixon, October 7.

Dr. M. H. Streicher, Chicago, addressed the Champaign County Medical Society, October 14, on "Diseases of the Rectum and Colon."

Dr. Robert S. Berghoff held a heart clinic for the Fulton County Medical Society at Canton, Illinois, October 20.

Dr. Philip Thorek gave a talk on "The Direct and Differential Diagnosis of Acute Gall Bladder Disease" before the DeWitt County Medical Society at Clinton, Illinois, October 20.

Drs. William C. Danforth and David S. Hillis presented a symposium on obstetrics before the LaSalle County Medical Society at Ottawa, October 21.

Drs. Clifford Grulee and Archibald Hoyne presented a program on pediatrics before the doctors of LaSalle County at Ottawa October 28, on "Infant Feeding" and "Diphtheria."

Drs. A. J. Kobak, Robert Black, Craig D. Rutler and W. B. Raycraft presented a symposium on obstetrics and pediatrics before the Morgan County Medical Society, October 28.

Dr. Samuel M. Feinberg gave a talk on "Allergy" before the Chicago Retail Druggists Association, October 19.

Dr. G. J. Rukstinat, Associate Professor of Pathology at Rush Medical College, addressed the McLean County Medical Society October 12 on the subject, "Causes of Death in Stillborn Infants."

Dr. Henry Eugene Irish addressed the Coles-Cumberland County Medical Society at Mattoon on October 7 on "Useful Drugs in Infancy."

Dr. Herman L. Kretschmer read a paper on the "Present Status of Trans-Urethral Prostatic Resection in the Treatment of Bladder Neck Obstruction" (by invitation) before the Kansas City Southwest Clinical Society, Kansas City, Mo., Wednesday morning, October 6. At noon on the same day at the Round Table Luncheon he gave a discussion on "Tumors of the Kidney." In the afternoon of the same day he talked on "Surgical Urology in Children" (by invitation).

October 18, Dr. John A. Wolfer addressed a group of student nurses at Lewis Institute on "Cancer" and Walter S. Priest spoke before a group of student nurses at University Clinics on "Heart Disease." These lectures are part of a series of lectures on Public Health and Social Problems conducted for student nurses in Chicago hospitals under the auspices of the Chicago Tuberculosis Institute.

Dr. Louis H. Block gave a series of three talks, September 23, 1937, at the Dixon State Hospi-

tal; one to the medical staff entitled "The status of the epidemic of bacillary dysentery in the Dixon State Hospital"; and another paper entitled: "Co-operation, a necessary requisite in the management of an epidemic of bacillary dysentery," to each of two groups comprising nurses, attendants and employees.

Meyer Solomon gave a talk on October 12 on the Psychology of Stuttering before a joint meeting of the American Speech Correction Association and the American Academy of Otolaryngology, in Chicago. He also recently spoke at Quincy, Ill., before the Mississippi Valley Medical Society in the morning, by radio in the afternoon, and before the All-Quincy Parent-Teachers Association in the evening, discussing emotional and personality disorders and marital discord and harmony.

On September 15, 1932, Dr. Gustavus M. Blech, of Chicago, was awarded the decoration of a knight-commander in the royal Order St. George. Although the next higher grade is that of Grand Officer, in a solemn conclave held May 15 last in Brussels, Belgium, Dr. Blech was voted the highest grade of Knight Grand Cross and was last week invested with the grand cordon and great star of that rank. It is learned, unofficially, that the only personage who was this year awarded this honor was the king of Italy. Dr. Blech has contributed many studies in the European literature dealing with medico-military problems which attracted favorable comment by foreign authorities.

Dr. Paul F. Kiouka, formerly at Arlington Heights, has been appointed city health director of Bloomington.

The Will-Grundy County Medical Society was addressed at Joliet, October 6, by Dr. George de Tarnowsky, Chicago, on gall-bladder disease.

Dr. Herbert N. Rafferty, Robinson, read a paper entitled "Success in Hernia Repair" before the Williamson County Medical Society at Marion, October 7.

The Chicago Council of Medical Women was addressed October 1 by Drs. Lucille H. Snow, Evanston, Ill., on "Cancer in Women" and Bertha Van Hoosen, "Maternal Mortality."

Dr. Joseph M. Keller, St. Louis, discussed "Disease of the Eye" before the Madison County Medical Society at its meeting in Alton, October 1.

Dr. Edward L. Jenkinson, among others, addressed the Chicago Roentgen Society, October 14, on "Cholecystography Before and After Medical Management."

At a meeting of the Chicago Pathological Society, October 11, the speakers included Drs. Arthur Weil and Erich Liebert, Chicago, and Gert Heilbrunn, Elgin on "The Histopathology of the Brain in Experimental Hyperinsulinism."

Dr. Frederick H. Falls, Chicago, among other speakers, discussed "Eclamptogenic Toxemia" before the Adams County Medical Society, October 11, in Quincy.

The Chicago Society of Allergy was addressed October 18 by Drs. Tell Nelson on "A Sheep Antibody to Pollen Which Blocks the Prausnitz-Kustner Reaction" and Paul Tachau, "Eczema and Similar Dermatoses in Infancy and Childhood."

At a meeting of the Kankakee County Medical Society in Kankakee, September 9, Dr. Clark W. Finnerud, Chicago, discussed "Diagnosis and Treatment of Common Skin Diseases."

Dr. Philip F. Schneider, Evanston, addressed the Bureau County Medical Society in Spring Valley, September 14, on "Progress in Obstetrics and Gynecology."

Dr. Rudolf Schindler, associate clinical professor of medicine, Division of Biological Sciences, University of Chicago, has been promoted to be associate professor of medicine, and Dr. Louis Bothman clinical professor of ophthalmology.

Drs. John T. Gernon, Chicago, and Paul H. Harmon, Springfield, addressed the Kankakee County Medical Society, Kankakee, October 14, on "Neurogenic Dysfunction of the Bladder" and "Poliomyelitis" respectively.

Dr. David A. Horner was chosen president-elect of the Chicago Gynecological Society at its recent annual meeting and Dr. George de Tarnowsky was installed as president. Dr. Edward D. Allen is secretary.

Dr. Charles F. McKhann, assistant professor of pediatrics and communicable diseases, Harvard University Medical School, Boston, addressed the Chicago Pediatric Society, October 19, among other speakers, on "Cross Infections in an Infant's and Children's Hospital."

At the annual joint meeting of the Institute of Medicine of Chicago and the Chicago Society of Internal Medicine, October 25, at the Palmer House, Sewall Wright, D.Sc., Ernest D. Burton

distinguished professor of zoology, University of Chicago, spoke on "The Hereditary Factor in Abnormal Development."

Dr. Dalton K. Rose, assistant professor of clinical genito-urinary surgery, Washington University School of Medicine, St. Louis, delivered the ninth annual William T. Belfield Lecture of the Chicago Urological Society, October 21, at the Palmer House, on "Neurologic Anatomy and Physiology of the Bladder and Its Clinical Application in Urology."

Dr. Frank J. Jirka, since 1933 health officer of Illinois, has resigned to reenter private practice in Chicago. Dr. Albert C. Baxter, assistant director of the department since Feb. 1, 1930, has been appointed acting director. Dr. Jirka's resignation was to be effective September 1, according to a recent announcement, but he continued in office during the outbreak of infantile paralysis. Dr. Baxter graduated from the University of Michigan Medical School, Ann Arbor, in 1907.

Dr. Paul H. Harmon addressed the Rock Island Medical Society on "Poliomyelitis" on October 12th, 1937.

He also addressed the Illinois State Nurses Conference, Springfield, Illinois, October 21, 1938 on the "Social Security Program for Crippled Children in the State of Illinois.

At a meeting of the Chicago Laryngological and Otological Society, October 4, the speakers included Drs. Archibald L. Hoyne on "Use of P.-Aminophenylsulfanilamide in the Treatment of Scarlet Fever Carriers"; John A. Bigler, Highland Park, Ill., "Blood Cell Response to Sulfanilamide Therapy," and George S. Livingston, "Sulfanilamide Therapy in Otolaryngology."

Dr. Joseph J. Eller, New York, addressed the Peoria City Medical Society, October 16, on "The Latest Methods of Treatment of Skin Conditions." At a meeting of the society, October 5, Dr. Laurence H. Mayers, assistant professor of medicine, Northwestern University Medical School, Chicago, discussed "Treatment of Arthritis."

News Notes

State and Kane county officials and medical leaders yesterday extolled the memory of Dr. Henry J. Gahagan, noted psychiatrist, at the dedication of a new $128,000 building at the Elgin State hospital. The building, where new mental treatments will be advanced, was formally named the Gahagan building.

Among the speakers were Mrs. Blanche Fritz, assistant director of the state department of public welfare; Dr. Francis Gerty, superintendent of the Cook County Psychopathic hospital; Judges Olney C. Allen and Harry C. Daniels, and Dr. Charles F. Read, head of the Elgin hospital.

The lauded Dr. Gahagan as a leader in his profession, and as a humanitarian. Dr. Gahagan was killed in an auto accident last November. As superintendent of the state hospital years ago, he developed many improvements in the treatment of mental cases that are now in universal use.

—During the past year the College of Medicine of the University of Illinois has received, by gift, two notable additions to its Medical Library.

A valuable collection of some 1500 selected books, also numerous separates and reports in the field of dermatology, was presented by Dr. William Allen Pusey. This collection has now been placed in the Medical Library and is available for the use of students and physicians.

The other gift came from Dr. Arthur E. Hertzler of Halstead, Kansas. This collection consists of about 7000 volumes and 8000 separates, largely in the field of surgery and surgical pathology. The books have been received at the College of Medicine and plans are now being made to arrange them in a way that will best serve students and the medical profession.

—The Physicians' Association of the Illinois Department of Public Welfare held its second annual meeting in the rooms of the Kankakee Medical Society, Kankakee, October 22, under the presidency of Dr. George A. Wiltrakis, Elgin. Speakers included Drs. Shirley W. Lane, Kankakee, on "Medical Economics in Relation to State Service"; Louis Belinson, Lincoln, "Progressive Muscular Dystrophy," and G. Heilbrunn, Elgin, "Insulin Shock Therapy in Dementia Praecox."

—The speakers at the banquet session of the symposium on occupational diseases of Northwestern University Medical School, September 28, were Mr. B. C. Heacock, president, Caterpillar Tractor Company, Peoria, and of the Illi-

nois Manufacturers Association, on "The Prevention of Occupational Disease," and Dr. Morris Fishbein, Editor, J. A. M. A., "The Future of Industrial Medicine." Dr. Irving S. Cutter, dean of the medical school, was toastmaster.

—The Chicago Woman's Club, through its cancer research committee, began a series of public lectures on cancer, October 21, with a talk by Dr. William A. O'brien, associate professor of pathology and preventive medicine and public health, University of Minnesota Medical School, Minneapolis. His subject was "General Aspects of Cancer." Other lecturers in the series are:

Dr. Clark W. Finnerud, assistant clinical professor of dermatology, Rush Medical College, Univedsity of Chicago, October 28, Skin Cancer.

Dr. Gatewood, clinical professor of surgery, Rush Medical College, November 4, Cancer of the Digestive Tract with Special Reference to the Stomach and Rectum.

Dr. Frank L. Rector, Evanston, Ill., field representative, American Society for the Control of Cancer, What Comprises Adequate facilities for the Care of Cancer Patients.

—Dr. Franz G. Alexander, director, Institute for Psychoanalysis, will conduct an introductory course of lectures on psychoanalysis during the first and second quarters of the institute, beginning October 27. The course will include the following subjects:

Historical Development of the Main Concepts of Psychoanalysis.

Concept of the Unconscious.

The fundamentals of Psychic Dynamics.

Theory of Instincts.

Theory of Dreams.

Development of the Personality.

General Concepts of the Structure of Neuroses and Psychoses.

Principles of the Psychoanalytic Technic.

Application of Psychoanalysis to Other Sciences.

Beginning October 23, Dr. Leon J. Saul will present a review of psychoanalytic writings on sociological subjects. Conferences and seminars will make up the regular program for members of the Chicago Psychoanalytic Society and candidates of the institute only, with Drs. Alexander, Thomas M. French and Therese Benedek as the lecturers.

—A program with motion pictures on the use of insulin and metrazol in the treatment of dementia praecox and other psychoses has been prepared by the medical staff of the Michell Sanatorium at Peoria and listed with the Educational Committee for use before County Societies.

Deaths

Otto W. Henssler, Chicago; College of Physicians and Surgeons of Chicago, 1893; aged 68; died, July 26, in the American Hospital, of carcinoma of the stomach.

David Alexander Hilliard, Geff, Ill.; Marion-Sims-Beaumont Medical College, St. Louis, 1902; member of the Illinois State Medical Society; aged 64; died, July 11, of infection of the gallbladder.

Emerit E. Jouett, Carrollton, Ill.; Marion-Sims College of Medicine, St. Louis, 1891; member of the Illinois State Medical Society; formerly member of the city council; aged 71; died, July 29, of carcinoma of the maxilla with metastases.

Harold Richard Keegan, Chicago; St. Louis University School of Medicine, 1925; member of the Illinois State Medical Society; aged 41; was killed, July 28, when he fell from a ladder at the Wilgus Sanitarium, Rockford, where he was a patient.

Fred Joseph Kraus, Chicago; Rush Medical College, Chicago, 1929; member of the Illinois State Medical Society; president of the staff of the Woodlawn Hospital; aged 37; died suddenly, July 11, of coronary thrombosis.

Bernard Joseph Lachner, Rock Island, Ill.; Jefferson Medical College of Philadelphia, 1906; a Fellow, A. M. A.; fellow of the American College of Surgeons; served during the World War; on the staff of St. Anthony's Hospital; aged 59; died, July 1, of cerebral hemorrhage.

Woodman Robert Marriett, Capron, Ill.; Rush Medical College, Chicago, 1886; aged 79; died, July 18, in the Municipal Hospital, Beloit, Wis., of prostatic hypertrophy.

William L. Murphy, Aurora, Ill.; Northwestern University Medical School, Chicago, 1903; a Fellow, A. M. A.; on the staffs of St. Joseph Mercy Hospital and St. Charles Hospital; aged 58; died, July 25, of angina pectoris.

Milo H. Trovillion, Metropolis, Ill.; St. Louis College of Physicians and Surgeons, 1892; member of the Illinois State Medical Society; secretary of the Massac County Medical Society; aged 70; died, July 15

George Heywood Vernon, Beardstown, Ill.; Hospital College of Medicine, Louisville, Ky., 1898; member of the Illinois State Medical Society; aged 62; died, July 6, of heart disease.

William J. Whitaker, Dongola, Ill.; Barnes Medical College, St. Louis, 1900; member of the Illinois State Medical Society; aged 65; died, July 17.

Stanley F. Wietrzynski, Chicago; Chicago College of Medicine and Surgery, 1914; served with the Polish Army during the world War; aged 46; was found dead, July 12.



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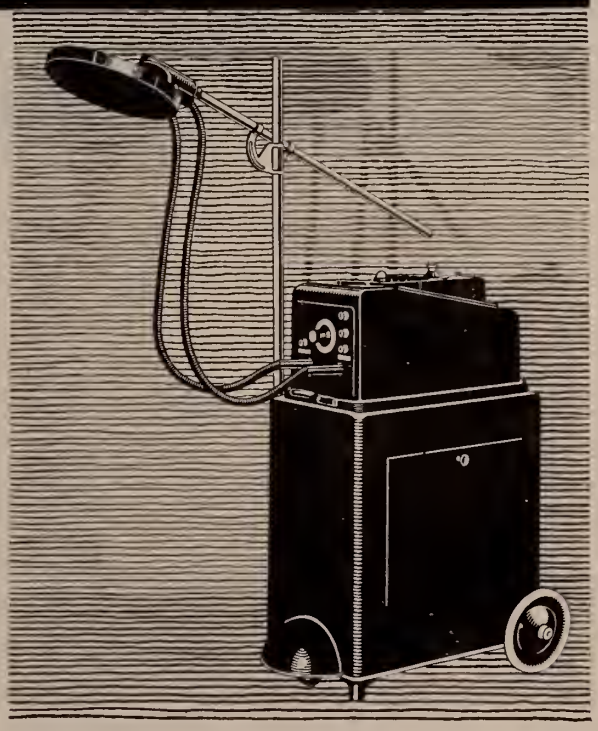
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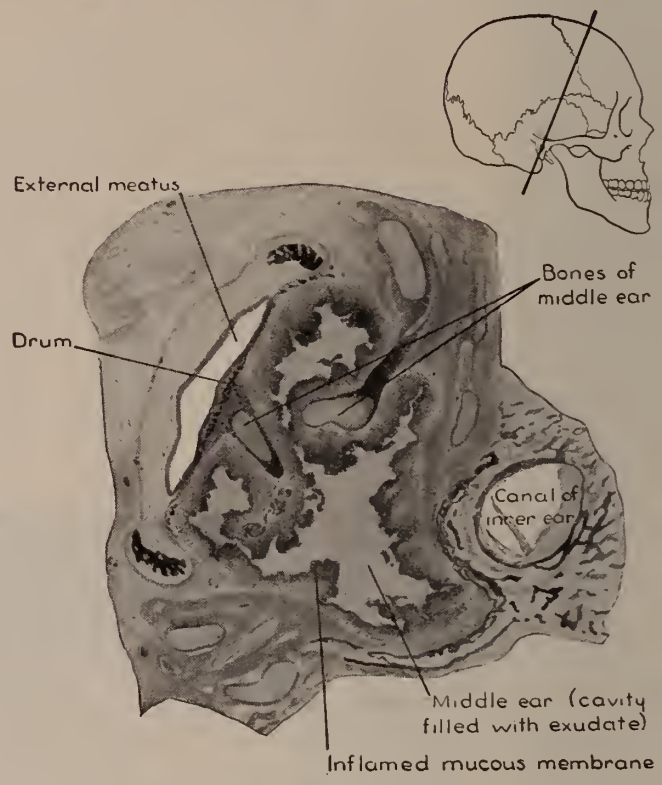
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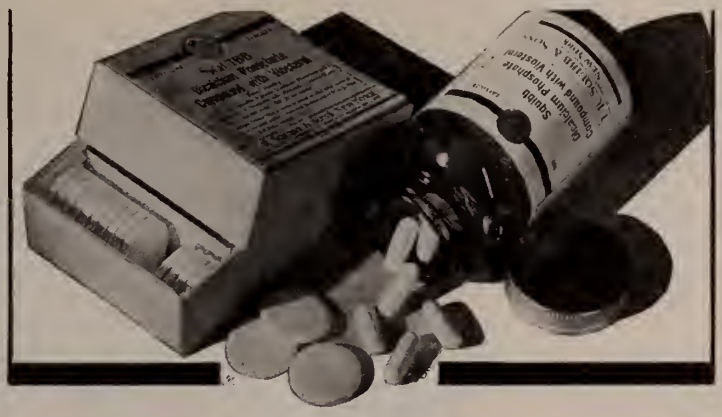


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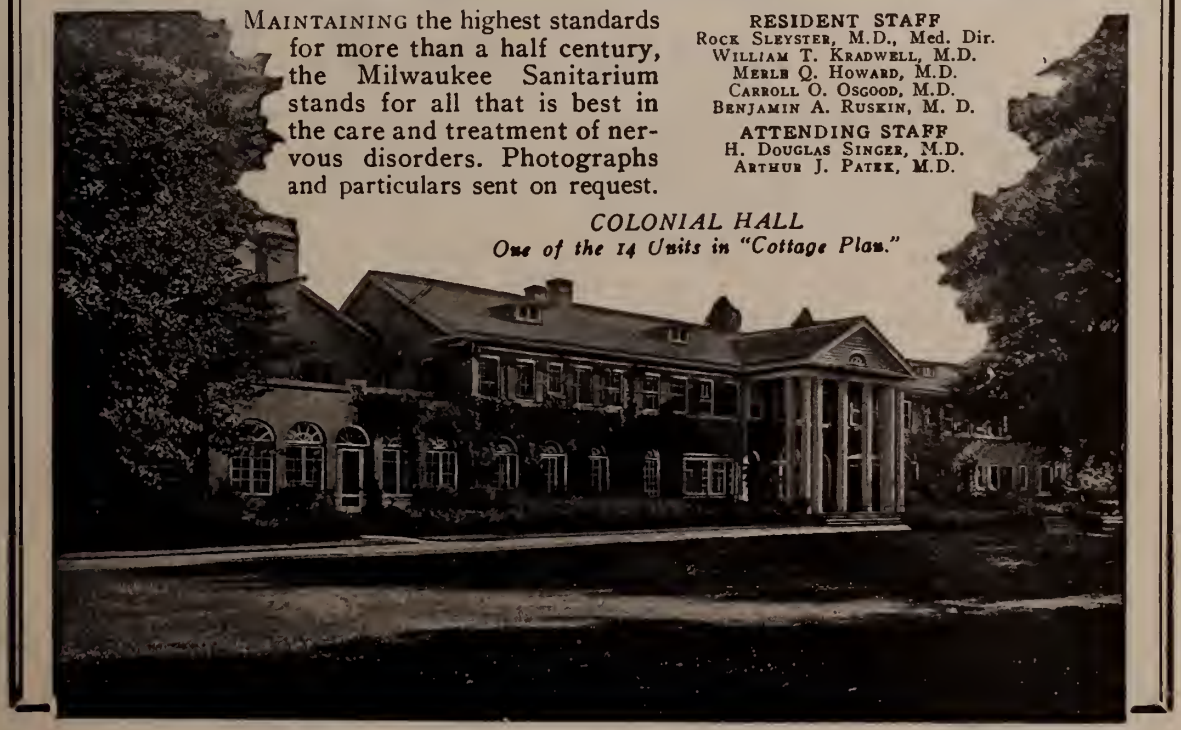
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1a. 1934. J. Amer. Med. Assn. 102, 892.
b. 1936. Ibid. 106, 996.
c. 1937. Ibid. 108, 7 and 15
d. 1937. Ibid. 109, 756.
2. 1931. J. Nutrition 4, 267
1932. Ind. Eng. Chem. 24, 650.
1933. J. Amer. Diet. Assn. 9, 295.
1935. Amer. J. Public Health 25, 1340.

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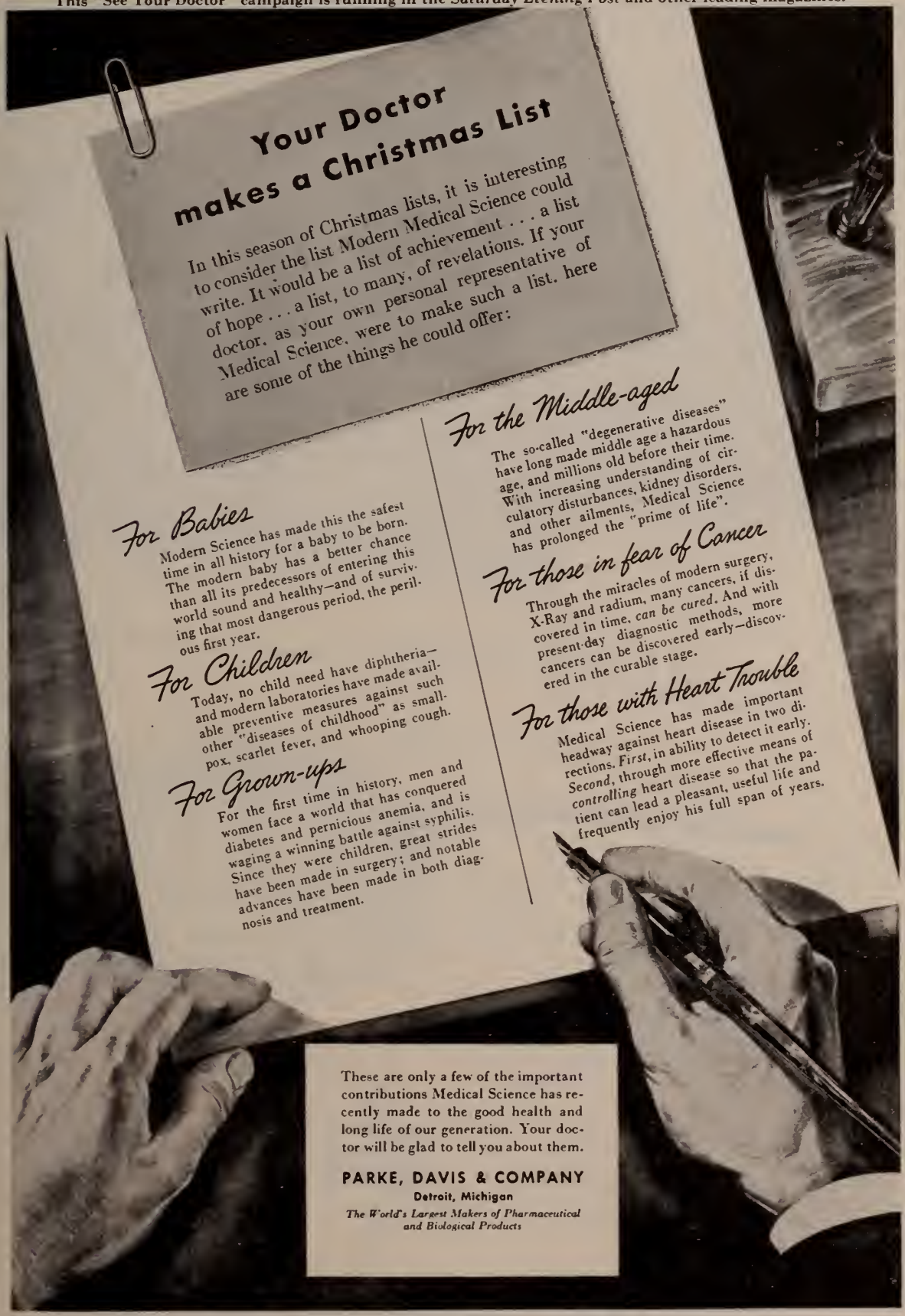
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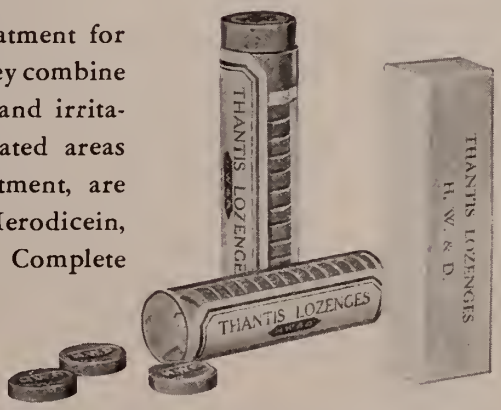


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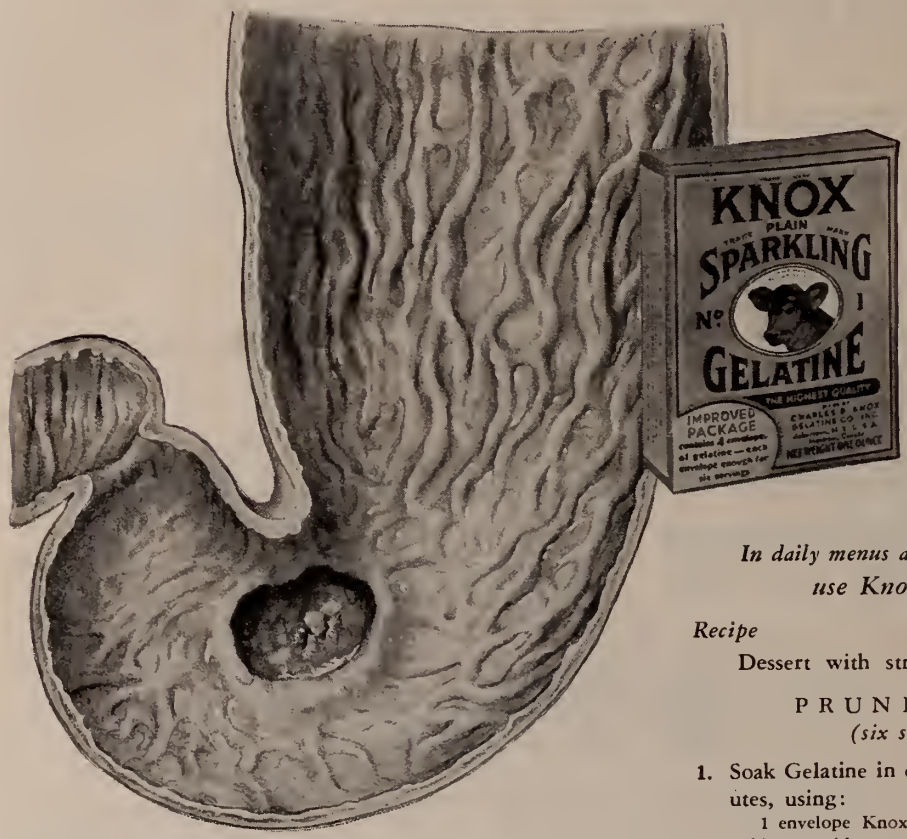
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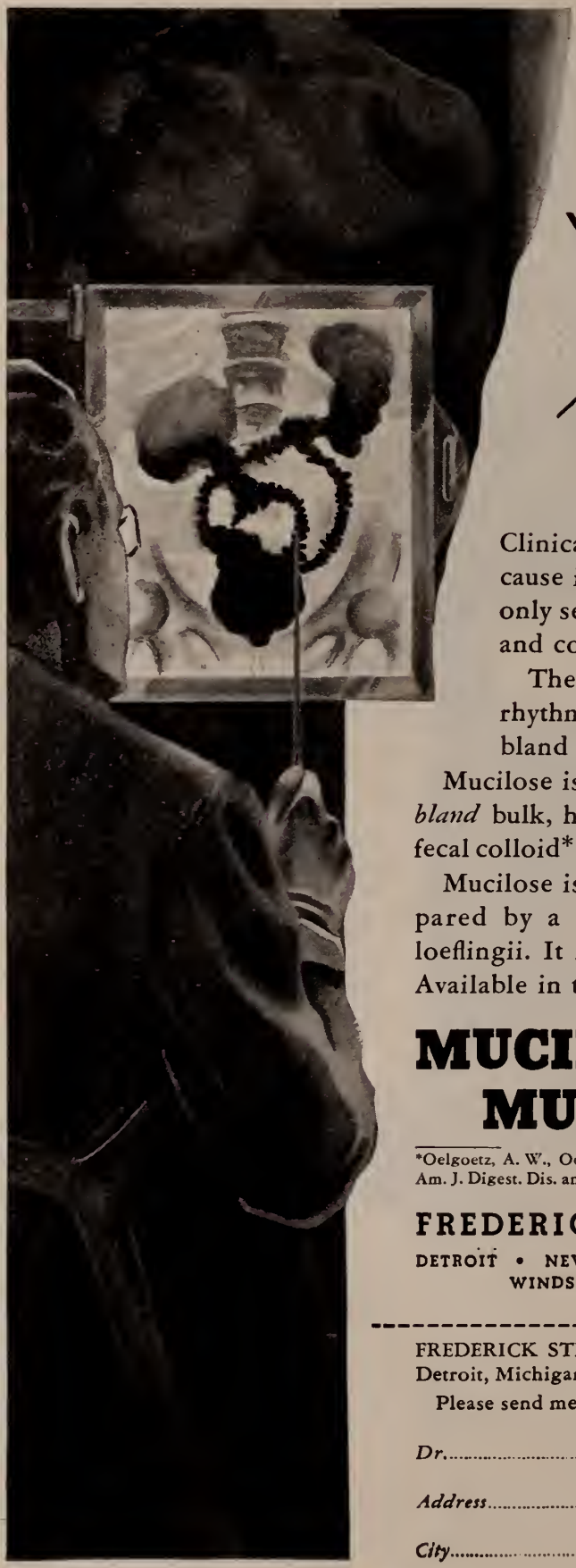
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*Oelgoetz, A. W., Oelgoetz, P. A. and Wittekind, J., Studies in Bowel Drainage. Am. J. Digest. Dis. and Nutrition 3:549, (October) 1936.

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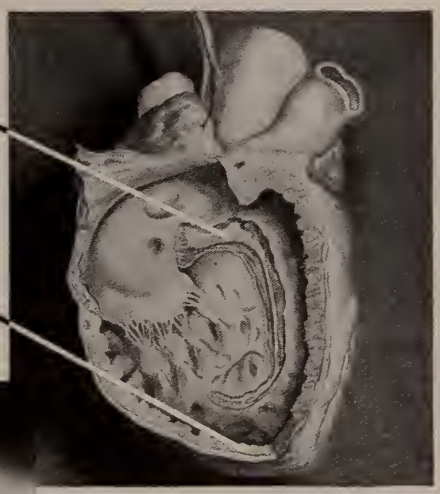


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Editorials

NEW DEAL PASSES FROM LAW AND ECONOMICS TO TAMPER WITH THE NATIONS HEALTH

What a political spoils system might do to medicine—in fact probably *will* do—has been well set forth by one of the best informed men in the world today upon our changing social systems. No less an authority than David Lawrence, an economic commentator, wrote recently from Washington, D. C., in a syndicated news letter in the *New York Sun*, August 26, 1937, under the title "NEW DEAL PASSES FROM LAW AND ECONOMICS TO TAMPER WITH THE NATION'S HEALTH" reprinted from coast to coast upon what he terms in competent phraseology is "the new deal's latest experiment which may prove the entering wedge for socialized medicine in America, some time called the placing of medical care upon a quantity production basis."

The underlying motif of this article of Mr. Lawrence is so analagous, ay, so almost practically parallel with the doctrines which have been advocated so strenuously for two decades in the editorial columns of the ILLINOIS MEDICAL JOURNAL that it seems well to quote extensively from the article of Layman Lawrence. If the rest of the general public could but be awakened to the dangers that confront not only private lives but private individualism when the American system of individual rights without tyrannical supervision by the ever-increasing menace in the substitution of socialism then might all honest Americans cry not only "Amen," but shout "Hallelujah."

In part says Mr. Lawrence:

"Like all New Deal 'experiments,' the plan to provide medical care by the group method is limited in scope at first. It is to apply for the present to the employes in Washington of the Home Owners Loan Corporation and the Federal Home Loan Bank Board, but it is so set up that it can just as readily be extended to all the 117,000 Federal employes here and the 700,000

or more Government employes throughout the country.

"Doctors have long suspected that the New Deal would seek to introduce 'socialized medicine,' but assurances to the contrary have come as usual from time to time from high quarters. The importance of the new experiment will be minimized in official quarters *so as to discourage opposition and the plan will be compared to various group health plans in private industry.* But the new organization, nevertheless, is directly in line with what has been urged by persons inside the administration who see the job possibilities and patronage potentialities of a medical bureaucracy in the Government. The latest step, therefore, may be taken to mean that the campaign for 'socialized medicine' has begun.

"The objections to this form of medical care are numerous and the best testimony is that which comes from experts who have studied the health insurance systems abroad."

Quoting those savants, Mr. Lawrence proceeds, first as to Great Britain.

"Thus, Sir E. Farquhar Buzzard, president of the British Medical Association, said recently in a public address:

" 'The chief flaw in a badly organized service, such as that which has evolved in this country during the last century, is lack of time, and both the general practitioner and the consultant, in order to earn a living wage, are frequently obliged to undertake far more work than they can deal with efficiently in the hours at their disposal.' "

As to Germany where medicine has been martyred to conform to theoretical and political statistics Layman Lawrence cites Dr. Paul G. Frank, a most reputable practitioner, who avers, "For almost thirty years I have worked as a German panel doctor under the conditions of compulsory health insurance, and for many years I was a member of the physicians committee. During this period I witnessed a deterioration of the medical profession. It came about by the removal of the sanctions of preferment by skill and the substitution of preferment to convenience."

From Austria—sacrified state both politically and practically as well as socially, scientifically and economically comes the voice of Dr. Jacob L. Moreno, who is an authority on the Austrian experience, who states flatly that:

"No physician is capable of properly treating the large number of patients sent him under sickness insurance. He is forced to evolve some mass production plan of operating his office to run people through his mill as fast as possible. The 'rush' system of handling patients is inevitable. When the technic of getting them in and out fast is perfected, the doctor begins to lose that intangible something which is vital to both himself and his patients—his morale. I do not know any doctor who remained long at this sort of practice in Austria who did not become hardened."

Now again citing from Layman Lawrence, whose figures coincide with medical statistics: "America's death rate, if the Southern States where large Negro populations live are eliminated, will be found to be lower than that of any of the countries where Government insurance schemes prevail. Likewise four leading countries which have the lowest death rates do not have compulsory health insurance. These are Australia, Union of South Africa, New Zealand and Canada. In South America, *Chile, which has compulsory health insurance, has a death rate of 26 per thousand inhabitants every year, while Argentine has 11 per thousand and Uruguay 10 per thousand, and neither of these last two countries has a government insurance system.*"

Dr. F. S. Winslow, president of the Medical Society of the State of New York adds this comment: "In Europe under compulsory health insurance and 'panel practice,' it is noted that, 'many physicians are required to see forty to sixty patients a day—some average 100. This is far too many. Why do not British doctors complain? It should be remembered that health insurance has existed as part of the Government in England since 1911. British physicians who see its great defects are 'cagey' in their public statements derogatory of a system in which so many physicians and bureaucrats are dependent.' "

From Dr. William J. Mayo of the Mayo clinic in Minnesota comes this opinion:

"We of the medical profession are determined that we will not be subjected to political interference. We will not sacrifice the spiritual values of our profession for the small material gain held out to us by political and social experimenters who are attempting now to control the practice of medicine. We refuse to be dictated to by men who are not physicians, who do not understand

the sacred obligation of physicians and their patients."

It would be comforting to feel that Dr. Mayo's stand is both universal and adamantine. But discouragement may be excused in the light of further statement from layman Lawrence in Washington where the stigmata of covert and overt socialization stultifies real Americanism and which reveals that, "Now a large number of doctors would have to be employed by the Government in any national scheme of 'socialized medicine,' but the selection of these doctors by a political spoils system would only be a worse step than the application for Government jobs of doctors not good enough to build for themselves a firm reputation and adequate practice in their own communities. If, for instance, all Government employees in Washington were to be cared for medically under some sort of group plan run by the Government, why should any good doctors stay here? Why should any new ones come here from the best medical schools to replace those who are retiring? Immediately there would be a destruction of incentive and a breakdown in the quality of medical care available to the people of this whole community.

"The new plan to be put into effect in the near future by 'The Group Health Association' among the Home Loan Corporation employees calls for payments of $3.30 a month for men with families and $2.20 a month for single persons.

" 'The service,' it is promised by one of the officials in charge, 'will include medical and surgical examinations, including examination in special departments, such as eye examinations, laboratory tests and X-ray examinations. In each case, complete medical and surgical care will be given.

" 'Hospitalization is to be given in a semi-private room for a period of three weeks during a single illness, without additional charge.'

"The staff of the new clinic is to be headed by Dr. Henry R. Brown of the tuberculosis division of the Veterans Administration and it is planned to hire a staff of about six or seven physicians.

"The charter of the new organization is not restricted to the employees of the Federal Home Loan Bank Board and Home Owners Loan Corporation who are to participate in the group health scheme, but, if successful, the project can be extended to all Government employees inside and outside of the national capital. The dues do not include cost of medicines, drugs and surgical appliances nor the expense of dental work, oxygen tanks, radium and deep X-ray treatments, blood transfusions or special nursing service. It is not planned to treat certain types of surgical or nervous disorder cases or to furnish treatment after the medical director recommends confinement in an institution in mental, tubercular, drug or alcohol addiction cases.

"The whole experiment, however, beginning now on a small scale, dovetails with reports current last November that the Social Security Board was studying the possibility of adding a national health insurance project as a part of its program. Comprehensive health insurance, of course, would be borne by the taxpayers and it is estimated as likely to cost 5 per cent of payrolls. The Social Security Board has authority to make research studies on 'related subjects' and health insurance is held to be one of these."

"The New Dealers are seeking to pattern their plans on projects in foreign countries, and it is all a most un-American movement.

"The New Deal has not hesitated to tamper with the economic system, to tamper with the judicial system, and now is reaching out to tamper with the health system of the country. Inasmuch as the Roosevelt administration has encourged a group of office-holding lawyers to seek to undermine the American Bar Association, it would not be surprising, therefore, if the administration, in order to make some sort of showing of approval by members of the medical profession, encouraged the formation of a rival to the American Medical Association to be made up either of doctors ambitious for jobs, or doctors who haven't made good in their communities, who do not have the gumption or initiative to undertake the hazards of private practice, and who prefer instead the 'security' of politically made and bureaucratic jobs," says layman Lawrence in conclusion. And layman Lawrence is right.

How the first step has been taken at Washington to "put the foot into the door" leading to state medicine, compulsory health insurance, government regulation and dictation, as told by David Lawrence, should be read and carefully

digested and its menacing, far-reaching purport noted by every physician in America.

PHYSICIANS! BE SURE OF THE UNDERLYING PURPORT OF ANY DOCUMENT YOU ARE ASKED TO SIGN

Several years ago when Health Insurance Propaganda was first brought forward a few leading medical men signed (?) a Compulsory Health Insurance Programme that they were later to repudiate.

The presentation was so insidious that the real purport of the propaganda was well masked. Down through the years these attempts to seduce medical leaders to the cause of socialized medicine have become more and more ambushed. Their repetition has been equalled only by their determination. One of the most glaring that "went over" so well that the majority of American doctors do not even now realize its sinister purport is the trip "down the river" taken by many well meaning physicians by the sponsors of the American Foundation Survey. On the face of things this survey appeared to be an honest straw ballot as to what doctors all over the country thought of ways and means to improve medical practice. As a matter of fact it was a stratagem as clever as the Wooden Horse of Troy. For later the background of the American Foundation was shown to be the most outspoken agitation for government control of medicine, governmental centralized medicine, and control of everything medical under the sun, along the Russian system of bureaucratic Governmental Control of everything controllable. Now directly following comes the so-called (and self-appointed!) "Committee of 430" which purports to be the lead batallion in a secession from the American Medical Association and all that it represents. The movement started in New York, where, following the publication of the report of the American Foundation referred to above, this group assembled, formulated certain principles and proposals which are now in circulation for signature among the medical men of the United States, and which, no matter how seemingly honest they appear on the surface, are nothing more nor less than another step in socialistic propaganda affecting the medical profession and through it a true Americanism.

It took six months for the nucleus of this group to get 430 signatures to their promulgated ideas. A statement of their proposals and principles was released to the public press on November 7. The gist of it all was that it made the general public believe that there is a medical rebellion *for state medicine in America,* and against the campaign of the American Medical Association in its attempt to prevent co-operative practice, sickness insurance and other socialistic changes in medical practice. In the last week of November still another group (albeit undoubtedly bound with the same string) began sending out proposals for physicians' signatures suggesting enabling legislation for sickness insurance. The general inference to be gained by the laity from all this racket is that the A.M.A. is a hive of demagogery from which the rank and file must seceed if they would be heard. Which of course is all hokum. The House of Delegates of the A.M.A. is exactly what its title says it is, and it governs the physicians of America only as they wish to be governed. State medicine WAS VOTED DOWN AT THE ATLANTIC CITY CONFERENCE. This was a bitter pill for the communists, for whom this much must be said—they never give up hope nor acknowledge defeat in an attempt to push their perverted doctrines.

Now comes the word that from at least 10 and perhaps 20% of the original signers of the "430 group" to the A.M.A. has come a disclaimer of signature in that they state that they had requested or will request the removal of their names from the list published, since when they affixed their names to the document they *were unaware of the nature of this document which they were supposedly signing. Illinois physicians should save themselves this embarrassment by knowing what they are signing before they sign it. Doctors should have learned by now that in any such petitionary circulation as these so-called social improvement affairs the real issue is always so successfully camouflaged that the snake in the grass is a cow in the field compared to the ambush.*

Already the so-called "Washington Plan" providing for medical care for Federal Employees and their families in the national capitol has economists aghast. For *Federal subsidies come out of taxpayers' pockets and when the tax to pay the government employes' salary is aug-*

mented by another tax from Maine to California to pay that employes medical bills then the taxpayer at large—and of such are not the bulk of federal employes—is again the scapegoat.

In the face of such subsidies the private practice of medicine in Washington, D. C. will have a hard time to survive, if not an impossible one. Similar organizations are already being planned in Denver, Kansas City, New Orleans and San Francisco from fragments of news seeping out of high places.

A cursory examination of the men who signed —"The 430" shows that many of the names affixed to that document are those of men whose names and actions are directly opposed to the views they are "signed up" as holding. Obviously some of those men must have affixed their signatures without reading what they were signing and were taken in merely by seeing the names of men who they knew held ideas analagous to their own, and which were already affixed.

It pays to read before you sign, and, better still, if in doubt get in touch with the officers of the medical societies in which you hold membership. Investigate first: sign afterwards.

CARBON TETRACHLORIDE IS EVEN MORE DANGEROUS THAN THE CHEMICALS WHICH IT SUPPLANTS

Insidiousness of chemically instigated industrial hazards, has been brought home with drastic emphasis to the American public through unfortunate, cumulative sequelae from negligent use of radium in various phases of manufacturing. Frequently with which similar chemical perils may be encountered in almost any industry reveals appalling lack of preventive research or only to often, even of humane suspicion of perilous possibilities.

Yet in the bulk of manufacturing and industrial processes lurk untold dangers as menaces to health and even to life. Such exist in the various carbon tetrachlorides, too hastily accepted as sadly needed substitutes for analogous, yet inflammable, solvents or constituents, and without due regard to toxic properties,—especially those that are vaporous,—and that make the carbon tetrachlorides highly objectionable unless used with clear and unremitting caution.

Hardly a week passes that there is not reported some disaster from even such comparatively simple chemical preparations as various dry-cleaning mixtures, calculated for use by the amateur cleaner in the home, or in great dry-cleaning plants and which are based either upon carbon tetrachloride or some one of the carbon tetrachloride products.

It is generally accepted that there are at least three major forms of poisoning for human beings that may be brought about by carbon tetrachloride:—i. e., 1. contact dermatitis; 2. asphyxiation; 3. acute and subacute poisoning. Asphyxiation, which resembles chloroform anesthesia, is brought about only by gross exposure. It is estimated that as little as 100 parts of carbon tetrachloride vapors per million parts of air stands as the beginning limit of danger to those exposed. Characteristic symptoms of acute and subacute carbon tetrachloride poisoning are:—slight headache, nausea, mental confusion, loss of weight, nervousness, secondary anemia, slight jaundice, chronic spasms of the muscles, necrosis of the liver, acidosis, phosphaturia, irritative nephritis, loss of consciousness, coma, such visual disturbances as blurred vision and color confusion and disturbances of near vision.

Carbon tetrachloride is placed at the head of the list of chemicals that can produce liver injury. This poisonous effect can reach the liver by 1. inhalation through the lungs; 2. absorption from the injured skin, or absorption from the digestive tract when administered orally. Then follow injury to kidneys, disturbance of the gastrointestinal tract and evil affections of the hematopoietic and the central nervous system.

When absorbed by the body in large doses, carbon tetrachlorides produce acute symptoms involving these organs. Fatal cases have been recorded from over-doses. In such cases there results an acute toxic necrosis of the hepatic cells with a clinical picture and pathological findings similar to those discovered in acute yellow atrophy or acute hepatitis.

In the kidneys, is shown the pathological changes of nephrosis, and albumin, and casts appear in the urine associated with renal subfunction: nausea, vomiting, and diarrhea are common: the central nervous system is affected, and profound dizziness, syncope and even temporary unconsciousness may occur. When the absorption is made from smaller doses and over an extended period of time, though the acute manifes-

tations are less conspicuous, the result is the same where the liver is concerned.

Retrograde changes take place too in the kidneys and the hematogenic organs and in the circular (?) nervous system after continuous exposure to carbon tetrachloride of low concentrations. Carbon tetrachloride is related chemically to chloroform, another chemical famous for its productions of liver injury.

There are unexpected instances in the history of poisoning from carbon tetrachlorides. For example there is medical record of carbon tetrachloride poisoning in a workman who used carbon tetrachloride for cleaning old telephones. Alice Hamilton is cited as noting the danger in carbon tetrachloride as a fire extinguisher in a closed space, under which conditions phosgene is generated. Under date of July 7, 1932, there was a fire in a New York subway when a standard fire extinguisher was used, and 150 persons were overcome by the fumes which were held to be probably a mixture of carbon tetrachloride, phosgene and chlorine.

In 1919 from Portsmouth Navy Yard come report of two men who died from fumes produced by plying a fire extinguisher upon the clothes of one man, when the garments caught fire.

There is record, too, of a case of a man who fumigated a small room by spraying with what was found to be carbon tetrachloride and an hour later was smitten with acute poisoning from the chemical.

Medicinally carbon tetrachloride is a powerful narcotic substance, surpassing chloroform, but its depressive effects upon the circulation eschew its use as an anesthetic. Toxicity of the chemical is increased by contact with heat.

Wirtschafter recommends routine examination of the visual fields of workers exposed to the vapor of carbon tetrachloride so as to detect possible toxic amblyopia at an early stage. Beckman warns against carbon tetrachloride therapy in ascariasis because[1] the activity of the worm is increased and[2] the dangers of using this chemical as an anthelmintic are well recognized. Carbon tetrachloride is widely used as a solvent in the rubber industries. It forms the basis of the non-inflammable home dry cleaner, "Carbona" as well as for the fire extinguishing fluid sold as "Pyrene." It is an excellent solvent for fats and grease and an excellent inducer of toxic cirrhosis of the liver. The non-inflammability of carbon tetrachloride has led to its substitution for benzine, but the question is now widely discussed as to whether the substitution was ever a wise or even an acceptable one because of the toxicity of its vapors.

This applies also to the use of carbon tetrachlorides as adhesive solvents in surgical uses. In Dec. 26, 1936, writing in the Journal of the A. M. A., Fremont A. Chandler wrote:

"In view of the aroused interest in adhesive solvents since the recent tragic accident in a midwestern university training camp in which two lives were lost, there is danger of exchanging fire hazards for less familiar asphyxiative ones. Benzine or similar products are inflammable and must be protected from open flames or sparks. These products are more efficient in the removal of adhesive tape and of desquamated epithelium. They are well tolerated by young patients. The potential danger of fire is probably only slightly greater than that present in the use of alcohol solutions which are on every training table or cart. On the other hand carbon tetrachloride softens desquamating skin only slightly. Its odor is offensive to children who have had recent anesthetics. Carbon tetrachloride and similar chemicals have definite and dangerous anesthetic properties.

Carbon tetrachlorides have been employed recently as a means of killing foxes without damage to the pelts. (Here is still another danger to wearers of furs. For since the vapor is heavy —a feature which enhances its use as a fire extinguisher it is difficult to thoroughly eliminate it from the long silky hairs).

Its use is condemned as an irrigant for the external auditory meatus because of the possibility of leakage into the pharnyx by way of the eustachian tube.

There is also record of cases where indiscriminate use of carbon tetrachloride in removal of adhesives from operative dressings has caused collapse of youthful patients.

A still further indictment against the carbon tetrachlorides emanates from catastrophes eventuating from the use of the chemical in cosmetics, for example shampoo mixtures.

Again citing Hamilton, she has reported the collapse and subsequent death of a womaa while having her hair shampooed with a carbon tetrachoride mixture. *The degree of absorption by*

skin was held in that instance to have been less than that achieved by absorption. The chemical always extracts the fats from the skin and produces a dry condition which favors absorption, and also initiates a dry dermatitis that causes the skin of the hands to crack, frequently producing avenues for secondary pyogenic infections.

The respiratory system is, of course, the greatest absorber. Nausea and vomiting produced by exposure to carbon tetrachloride are due to the reaction upon the circular nervous system and not to local gastric upset.

Emphasis should be placed from the standpoint of inhalation, upon the dangers of using carbon tetrachloride as a remover of grease spots from a closed automobile.

Comment must be made upon the fact that the Egyptian Board of Health in its wholesale treatment of villages for hookworm disease found carbon tetrachloride intoxication "occurring often enough to warrant a routine set of precautions to be enforced within the temporary compounds where all treatments are given."

In February, 1937, writing in the *Ohio State Medical Journal,* Selman and Wirtschafter said:

"Any toxic substance, which is used daily in many homes, sooner or later, is subjected to accidental oral ingestion. The toxic effects of oral ingestion of carbon tetrachloride which has become a common household commodity in recent years, have not received the attention that they merit."

Arraignment proceeds with impetus.

As concluding evidence let me quote from Knud C. Moller, Institute of Pharmacology, University of Copenhagen, who in the Journal of the A. M. A. as far back as Nov. 12, 1932, wrote: "In recent years carbon tetrachloride has found extensive application in a number of different fields and in many different ways. The well-known use of carbon tetrachloride as a fat-solvent, coupled with the fact that it is non-inflammable, has resulted in its wide use during the last few years in dry cleaning. The not infrequent explosions and fires that result from dry cleaning with benzine naturally recommend the use of carbon tetrachloride as a substitute for benzine in work of this kind. The recommendation may be warranted, but it has not been accompanied by any information about the rather high toxicity of carbon tetrachloride and the risk its application may involve if special precautions are not observed. And so, the steadily increasing use of carbon tetrachloride naturally raises the question of the risks that may be incurred by persons who either handle the chemical or are exposed to inhalation of gas fumes.

"Some instances of this inhalation may be cited in the cases of 1. A woman factory worker who suffered from severe headache, nausea, and anemia traced to painting golf ball moulds in which use of carbon tetrachloride was involved; 2. A school janitor poisoned by the use of polishing wax containing the chemical; 3. Five workers at once who were occupied in the preparation of an insecticide containing carbon tetrachloride and in which instance two of the men were very severely poisoned."

Summary of the evidence leads to the emphatic editorial comment that carbon tetrachloride is even more dangerous than the inflammable chemicals which it supplants. Its use should be surrounded with every precaution, and with due information as to its possible dangers supplied to every purchaser of the substance.

This entails an extra responsibility upon members of the medical profession and a decisive action upon their part to enforce chemically protective as well as mechanically protective legistion in industry.

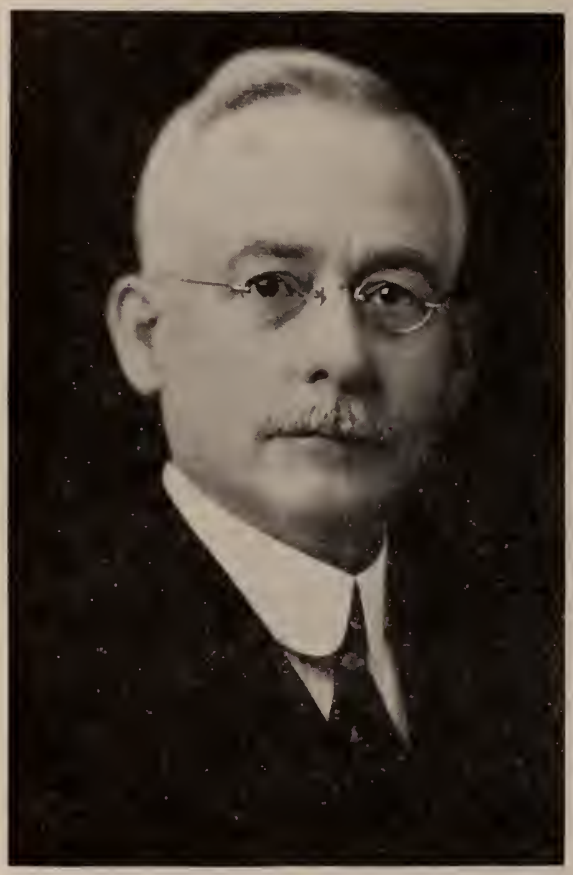
WILLIAM LINCOLN NOBLE, REQUIESCAT

William Lincoln Noble breathed his last on October 14, 1937.

Doctor Noble's work in medicine and among men will not soon be forgotten. His was a genius for friendships and a genius for making men whole. He had too, that rare adaptability, too infrequently seen, for making civic affairs and science go hand in hand. Doctor Noble was one of the few men of our contemporary generation who could fill competently a political job and yet emerge from it free from political effluvium.

For a year Doctor Noble served as superintendent of the Cook County Asylum for the Insane, leaving that post to become County Physician during 1891-2. But two years of such service found him more than ready to take up private practice, and he decided to specialize in the eye and ear. After his graduation from Rush Medical College in 1888, Doctor Noble served his interneship at the Illinois Charitable Eye and Ear

Infirmary, and thus began an affiliation which endured through some forty years, and for the later period of which he was chief of staff of the institution. In 1930, Doctor Noble realized one of his life's greatest ambitions—an appropriation from the State of Illinois for property and for a new building, adjoining the old building housing the Eye and Ear Infirmary on Peoria and Adams streets. This achievement gave Doctor Noble an abiding satisfaction. Through the years he had fought for adequate housing for the



William Lincoln Noble, M. D.

institution where he had begun his career and which had received so much of the *real man* that was William Lincoln Noble, that it is doubtful if anywhere anything would have appealed to him half so much as genuine achievement. This achievement was however the last of Doctor Noble's public connections. He was even then seventy years of age and four years later his health began to break. He lived quietly and in semi-retirement in his spacious comfortable home until the day of his death. He is survived by his widow, Mrs. Marion Noble (neé Holden) and two sons and a daughter—William H., a lawyer, Henry H., and Jane, an undergraduate at Skidmore College. Funeral services were held at the First Congregational Church at Evanston with subsequent interment at Graceland Cemetery.

To the practice of his profession, Doctor Noble brought the best of American tradition. The elder of twin sons he had been born on a farm in northern New York, nine miles from Canton, N. Y., the home of that most competent college, St. Lawrence University, that has given to the United States so many excellent educators and men of affairs. Doctor Noble was one of five sons and the homestead was near the foot of the Adirondacks, on rolling hills cut with small brooks teeming with fish and a young paradise for the small boys of the clan Noble. The *New York Tribune* was a daily and Sunday visitor to the home, and though the interior of the small home was simple though sturdy there was a surprising number of well-chosen books and a father and mother who knew how to direct the tastes of small boys to good literature. Throughout his life, this love of history and of classic literature so engendered remained with William Lincoln Noble.

His early education was the "district school." His ambition aroused there was fostered by his truly remarkable mother and later came preparation for College at Canton Academy and later St. Lawrence University. His college was interrupted by periods of teaching to gain funds but in 1885 he got his sheepskin, and almost half a century later,—in 1927 to be exact—his Alma Mater gave him an honorary LL.D. for his work in medical education!

An older brother, Dr. J. B. Noble, had already begun to study medicine at Rush, and so as soon as he had his degree from St. Lawrence "U," William Lincoln Noble followed him to Chicago.

In 1897 Doctor Noble joined the staff of the West Side hospital, and he became both an officer and a director and held these positions until shortly before his death. In 1916 he was elected president of the Illinois State Medical Society, and in that same year was appointed by ex-Governor Frank O. Lowden as a member of a committee drafting a new medical practice act—an administrative code still in use and found most admirable by all of ethical medicine—and further Doctor Noble served also on the first examining board for the licensing of physicians. He

was formerly member Advisory Commission, Illinois Department of Registration and Education. In 1921 he was elected trustee of the University of Illinois continuing in that office through 1933 and for eight years was president of the board. He was largely responsible (in conjunction with Gov. Len Small) for greater appropriations for the university and the initiation of an extensive building program, especially that pertaining to the west campus. A student and a disciple of the Harvard Housing plan. Doctor Noble labored for better living conditions for students and with the support of other members of the board pushed to success, the erection of several sadly needed new dormitories. Deeply interested in the educational side of college life, he was also a firm adherent of the humanities or liberal arts as opposed to trade schools in the curricula of the undergraduates. The year before the United States entered the World War, Doctor Noble served on a committee to organize the medical draft set-up for the state of Illinois and received a commission before war was declared.

Doctor Noble was a member of the Chicago Medical Society: the Illinois State Medical Society; and affiliate fellow of the American Medical Association. In 1912-14-15 Doctor Noble was a delegate from Illinois to the House of Delegates of the American Medical Association. In 1912 he was a member of the Reference Committee on amendments to the Constitution and By-Laws and in 1915 was a member of the Reference Committee on Rules and Order of Business of the American Medical Association; he was a past-president of the Chicago Ophthalmological Society, and a member of the faculty of the Illinois Post Graduate Medical School. His practice in Chicago commenced in 1888.

THE PASSING OF ELMER BURT COOLLEY

A man who had brightened the staff of Aesculapius over half a continent—from western Idaho to mid-western Illinois—passed away on Tuesday, October 12, and this passing of Elmer Burt Cooley, M. D., was a grevious blow to numerous friends and acquaintances.

True, Doctor Coolley had lived more than man's allotted span to man. Born on an Illinois farm on April 17, 1867, this eminent general practitioner was in his seventy-first year. He was both the grandson as well as the son of a Presbyterian minister. His mother, prior to marriage was Miss Pelina A. Biggs and his father was the Rev. Cyrus P. Coolley serving for 12 years at Newman and for the same period at Fairmount, Ill. Doctor Coolley's early education was at Cherry Grove and later at Newman high school whence he went to the Illinois State University and thence to Rush Medical, from which he was graduated in 1888.



Elmer Burt Coolley, M. D.

He immediately began practice in Newtown, Vermilion Co., Illinois. From 1902 until 1904 with his family he passed in search of health at Mountain Home, Idaho. During his stay in Idaho, Dr. Coolley was not a practicing physician yet he did much for the cause of ethical medicine while sojourning there, and left an impress upon the citizens of the town and the vicinity that has been felt for over thirty years.

Upon his return from Idaho, Doctor Coolley took up residence in Danville, Ill., and lived and practiced there until his death. He had served both as president of the Vermilion County

Medical Society (1901) and, in 1909, of the Aesculapian Society of the Wabash Valley, which is the oldest medical society west of the Alleghenies. In 1917 he was president of Illinois State Medical Society. For many years Doctor Coolley was a member of the staff of Lake View Hospital, in Danville, where he had been a patient since Feb. 24, 1937, and where he passed away.

Dr. Coolley became a member of the Masonic order at Newtown, Ill., later transferring to Olive Branch Lodge of Danville, in March, 1908. He received the degrees of the Lodge of Perfection, AASR, Nov. 2, 1904, and the council and chapter degrees in 1908 and was a charter member of Danville Consistory in 1911. He was honored with the recognition of the 33rd Degree on Sept. 15, 1914. He was elected thrice potent master of Lodge of Perfection in 1908 and 1909; was Sovereign Prince of the Council in 1911 and 1912 and served as commander in chief of Danville Consistory from 1919 through 1922. Doctor Coolley served as chairman of the committee on obituaries of the Grand Lodge of State of Illinois during the years 1931 and 1932.

In 1920 Doctor Coolley, a life long Republican, was a candidate in the 18th Illinois District primary election for Congress, being beaten by Uncle Joe Cannon.

Doctor Coolley delighted in watching light harness racing and became so enthused in this sport that he owned and raced a stable for years.

For a number of years he was president of Illinois Tuberculosis Association and a member of the building committee that planned and constructed Vermilion County Tuberculosis Dispensary and he served as a director until his death. He was a past president of Vermilion County Tuberculosis Association.

He was made a life honorary member of Illinois Medical Society because of his past services as president of the organization and to a state medicine. A similar honor was bestowed on him by Danville Rotary Club.

In 1916, the second year after Danville Rotary Club was founded here, Doctor Coolley was elected its president. He was a member at time of his death and had a good attendance record until illness forced him to give up his active duties. He was known in the club as a man who exemplified Rotary ideals. Club presidents knew, too, that when they wanted someone capable of handling a job on a club program, Doctor Coolley was dependable.

Heads Doctors Club

In 1912 he was elected president of Danville Physicians Club and in 1918 was a delegate to American Medical Association and was the first honorary member ever elected by the Tri-State Medical Society. In 1921 he became city health commissioner and served in this capacity several years. He was a past president of Danville unit of Chicago University Club and a life member of Chicago Press Club and Rush Alumni Association.

Doctor Coolley was married June 11, 1891, to Miss Nellie Fowler, daughter of Wiley and Mary Fowler of Pilot Grove, Vermilion County. Two sons, E. Burt, Jr., now dead, and Marion F., Indianapolis, were born to this union.

Besides his widow and son, a sister, Mrs. W. F. Burres, Urbana, survives, and two cousins, William of Paris, and I. N. Coolley of Brocton.

Requiescat—in Pace.

MERRY CHRISTMAS

In wishing the members of the Illinois State Medical Society a "Merry Christmas" the finest possible yuletide gift that the Editor might send to his fellow-physicians would be the hope that the day in every angle shall be filled with the spirit of "PEACE ON EARTH, GOOD WILL TO MEN."

CONGENITAL HYPERTROPHIC PYLORIC STENOSIS IN INFANCY

Edward J. Donovan, New York (Journal A. M. A., Aug. 21, 1937), states that congenital hypertrophic pyloric stenosis occurs about seven times more often in boys than in girls. In the group reported on there were seventeen girls and 126 boys. Vomiting is always the first symptom and in the majority of the cases begins between the second and the fifth week of life. The tumor, caused by hypertrophy of the circular muscle of the pylorus, is pathognomonic of the condition and may be felt in every case. The Fredet-Rammstedt submucous pyloroplasty is the most satisfactory operation and gives a permanent result, as shown by the follow up of the cases reported. There were no deaths in this group. One death occurred in a group of 100 cases reported in 1932, making a total of one death in the last 243 cases. Preoperative preparation is the greatest factor in bringing the mortality to its present level. The complication most to be dreaded is accidental opening of the duodenum. The change from thick pyloric tumor to thin duodenum is rather abrupt, and great care must be exercised in separating the cut edges of the muscle toward the duodenal end.

TREATMENT OF ULCERATIVE COLITIS WITH ALUMINUM HYDROXIDE AND KAOLIN

In ulcerative colitis these is a raw ulcerating mucous membrane, and thus to obtain the maximal benefit from kaolin and alumium hydroxide James B. Eyerly and Herbert C. Breuhaus, Chicago (*Journal A. M. A.*, July 17, 1937), give it only by rectal retention. First, the colon is cleansed with a pint of warm water. In one hour this is followed by a retention enema consisting of a 3 to 5 ounce (60 to 150 Gm.) mixture of kaolin and aluminum hydroxide in from 3 to 5 ounces (90 to 150 cc.) of warm distilled water. The patient is instructed to retain this as long as there is no discomfort. Usually one retention a day is sufficient, but occasionally two are given. In this manner, larger doses of the mixture can be brought into direct contact with the inflamed mucous membrane without previous admixture with food and digestive juices. The diet must be of high caloric, nonirritating type and contain all vitamins necessary for normal health. Opium in some form is frequently used in the early stages if pain and excessive diarrhea are present. A consistent program carried out intelligently is essential if such cases are to be cured. The treatment of ulcerative colitis by aluminum hydroxide and kaolin mixture is rational. The adsorption of bacteria and their products reduces irritation and decreases the absorption of toxins. The astringent action lessens absorption and the transudate from the inflamed surfaces is diminished. It is not toxic. A neutral reaction in the lumen of the bowel is preserved. No bolus or impaction formation occurs with moderate care.

THE STUTTER-TYPE CHILD: THE SPEECH INDEX OF NEUROTIC BEHAVIOR

According to James Sonnett Greene, New York (*Journal A. M. A.*, July 17, 1937), an analysis of 2,203 patients in 1936 applying for treatment at the Medical-Social Clinic showed that about 50 per cent suffered from dysphemia (stuttering) and that the rest suffered from various forms of voice and articulatory conditions. While, as far as the individual suffered is concerned, the defects of articulation and phonation are equal in importance to stuttering, the complexity of the problem of stuttering speech makes it of far more importance from a therapeutic point of view. The stuttering child is classified in a special group. He is viewed as a nervously agitated organism demonstrating strong excitation and a tendency to quick interruption or inhibition and having a high emotional tone. Because of this peculiar functioning the nervous system, the stutter-type child may demonstrate his hesitating performances not only in speech but in many other forms of psychomotor activity. However, as the neuromuscular coordinations involved in speaking are of a highly complex and delicately balanced nature and since speech is so necessary for normal social adjustment, the involvement of the speech faculty in the stutter-type syndrome makes stuttering in speech a far more serious problem than chronic hesitation in other muscular activities. Stuttering has been viewed at the National Hospital for Speech Disorders primarily as a physical symptom of psychic conflict, with the high emotional energy of the stutterer directed toward a fear which disintegrates his entire personality, and the treatment has been arranged in the form of a composite therapy of a medical, social, psychiatric and psychologic nature, directed toward the tranquilization, organization and adjustment of the personality. As the stutter-type child's difficulty is one of social adjustment, his personality problems are worked out in a group medium, directed toward the integration and organization of his personality, so that he may make adequate adjustment to home, school and juvenile social environments. Since the neurologic conditions inherent in the stutter-type child's neuropathic diathesis are aggravated by tensions arising from parental neuroticism and lack of harmony in the preschool home environment, a parent group has been formed for the mothers to facilitate the making of home adjustments. Under proper guidance, mothers receive an insight into child psychology and the importance of harmony in the home. This has resulted in the removal of many disturbing causal factors.

TULAREMIA, PULMONIC FORM: REPORT OF FOUR RECOVERIES

Malcolm D. Winter, Miles City, Mont.; Brownlow C. Farrand, Jordan, Mont., and Harry J. Herman, Jerseyville, Ill. (*Journal A. M. A.*, July 24, 1937), found only twenty cases reported in the literature in which recovery occurred after tularemic pneumonia. They had the records of three more (one of which was complicated by involvement of the central nervous system) and one complicated by bronchitis with small pleural effusions. This complication has resulted in a fatal outcome in all the previous reports that they have seen. The treatment received by these patients was largely symptomatic with the addition of intravenous injections twice a day of sodium salicylate 1.2 Gm. dissolved in 30 cc. of distilled water. This measure seemed to make the patients less toxic. In case 1, daily spinal drainage was carried out after meningeal symptoms developed until the spinal fluid was clear. This measure the authors feel sure was definitely beneficial. After each tap the patient became mentally much more alert. Dyspnea on exertion and general weakness predominated for some months after recovery and would lead one to believe that a toxic myocarditis was the usual sequela. The authors' experience as to the frequency of clinical pulmonary involvement in ulceroglandular tularemia does not coincide with that of Blackford, as pulmonary complications were not present in any of their cases of the ulceroglandular type, nor was either ulcer or glandular involvement present in any of their pulmonic cases. They do feel that the portal of entry in these cases was most likely through the skin, while handling sheep during lambing season, although it is possible that the patients may have eaten food contaminated by the fingers, the damp wet weather making inhalation of infected material very unlikely. Any atypical pneumonia with a relatively low white blood cell count and slow evolution of lung changes should cause one to suspect tularemia. It must also be considered in pleurisy with effusion.

MEDICAL ECONOMICS

H. M. Camp, M. D.
E. P. Coleman, M. D.
John R. Neal, M. D.
I. H. Neece, M. D.
W. M. Hartman, M. D.

Edited by the Committee on Medical Economics of the Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

R. K. Packard, M. D.
Ralph Peairs, M. D.
C. B. Reed, M. D.
C. S. Skaggs, M. D.
C. E. Wilkinson, M. D.

Address all letters and communications to the Chairman.

The Chairman of this Committee wishes to thank the other members of the same, particularly State Secretary Dr. Camp; and Chairman of the Legislative Committee Dr. Neal, for the excellent manner in which they conducted the Column during the absence of the Chairman. In fact, we believe the material in the Column was the best last month for the past year.

So much of economic importance in medical circles has appeared in the past two months, it is difficult to know where to start in discussing the same. Probably the most important is the flank attack on organized medicine at Washington, where a Health Insurance Plan for all Federal employees has been organized exactly according to the plan reported at the last meeting of the House of Delegates in Atlantic City last June. At that time it did not receive much attention, due to the fact that many could not believe that the government would subsidize such a movement. However, the meagre details of the plan so far available to the medical profession at large show that the proposed plan is receiving governmnetal aid, both directly and indirectly. The latter method is by medical men from other governmental agencies being transferred to the newly organized group to act in administrative and executive capacities. This in itself should be sufficient proof that the plan has the approval of the reformers. Including as it does, both hospitalization and complete medical care at a price of $2.50 per month, it certainly is practically state medicine under another guise. It could not have been organized in Washington by men in government service without the official there being acquainted therewith and giving tacit approval. Now it is reported by sources usually accurate that the plan is to be expanded to ten or more cities over the United States where there are large numbers of government employees. If this does not appear to be propaganda and missionary work for a more complete and extensive plan for the rest of the country, then we are at a loss for a plausible explanation.

Naturally this has stirred up considerable discussion, both in and out of the medical profession. A group of 430 physicians have approved the plan and made additional suggestions, thereby receiving a great amount of newspaper publicity, as well as the disapproval of organized medicine. There seems to be a definite desire on the part of the press to publicize these men, many of whom are men in their last years of medical practice, who both live and look in the past and with a smug complacency forget the days before they held such exalted positions that they did not need to worry about their future. Many of them are the heads of Medical Schools or associated with Clinics, so that they are removed from the routine care of poor people and know little or nothing about the actual practice of medicine in the home, either city or country.

Possibly the American Medical Association, through its officers, has been dilatory in acquainting the rank and file of the medical profession with the dangers threatening them. Of course, anyone really interested in this subject who has followed the proceedings of the A. M. A. and read the articles in the J. A. M. A. or the Illinois Medical Journal knows what is being proposed at Washington. The defeatists, who say nothing can be done, and the selfish, who insist that it will never affect them in their lifetime, are hopeless at all times. We need now as never before real leadership, and it is to be hoped that the A. M. A. will furnish the same. Even a special meeting of the House of Delegates should be considered to discuss the proper method of opposing this plan. The cost of such a meeting is of no consequence when the gravity of the matter is considered. It seems difficult to believe that the Trustees of the

A. M. A. are willing to assume all the responsibility in the matter.

Dr. A. J. Cronin of England has recently published a book called "The Citadel," which is the story of the first years of a young physician in England and his experiences as a contract physician, a government doctor, and lastly as a physician in private practice. It is most interesting and well worth the time of any medical man. It portrays most excellently the difficulties of a young physician in establishing a practice and gives the laity an inside picture of the troubles of a doctor. Incidentally, it arraigns contract practice severely and, while it is not unkind to the medical profession, it shows that many factors other than ability and industry make for success, as the world gauges success. Buy the book, read it, and pass it on to influential men in your community.

This month we are fortunate in having articles in this column from the pens of both Dr. I. H. Neece, Chairman of the special committee appointed from the Council to assist in the fight on syphilis, and Dr. C. S. Skaggs, Past President of the Illinois State Medical Society. Both are well worth reading, and we hope every member of the State Society will do so.

E. S. Hamilton,
Chairman of Commitee.

WHY DON'T WE SOLVE OUR PROBLEMS?

Do I know why?

Answer: I do as far as I am personally concerned. It is because the rest of the people won't agree to do as I want them to do. The rest of you out there are of about the same opinion. We have all come to the place where we believe that we know about as much as the other fellow. The fact is, too many of us know too much to have confidence in the other fellow. There are many good reasons why we do not trust each other. Then it would seem reasonably fair to say that the reason we do not solve our problems is, we cannot agree on any program and abide by its principles because we have lost confidence in each other.

Can confidence be restored? Not until we can trust each other and be worthy to be trusted. Can this tangle be untangled? No one would want to say no, nor would anyone have the right to say this cannot be accomplished, for this would be equivalent to saying that our situation is a hopeless one. I have read and heard this quotation: "I, even I, forgive your transgression for my own sake." Can man ever understand the full meaning of these few words?

What has happened to mankind? Another question that each individual has a personal answer for. This personal answer having the same living theme. That is, if one looks into himself deeply, there will be found an excuse for the past mistakes I have made in society and a blame for you.

We refuse to believe in fundamental principles and play a make-believe game. We pretend to believe in false standards and defend them in words when we are conscious that we are not supporting the principles that would solve our problems. In the past few years many a man and woman have made themselves prominent in playing a make-believe part. That the greater portion of people do accept these false standards is proven by the evidence obtained through the channels of modern advertisement.

Turn on your radio for a few moments and hear what you can buy for a dollar down and then what will be given to you absolutely free if you make this purchase, pay a dollar and sign your name. Look at the billboards, the advertising pages in the papers and magazines. These pay profits or they wouldn't be heard or seen, for they cost money. The make-believe game has stolen the crowds and the game of truth has no following. If the truth has no opportunity to be presented, there is little chance for the people to know it and, if presented, the glamour of the make-believe is so beautiful and promising to personal gain that the truth has no appeal.

Some students of the past tell us that man made his appearance upon this earth some five million years before you and I came here. This leaves no doubt about the past that man has been trying to create a social order for some time. There are records of some seven different civilizations which have come and gone, except the one we now have, and there are some who are about ready to file the record of this one among the archives of the past. How many civilizations may have existed before man felt that his acts were worthy of recording is a difficult question to answer and, if answered, would only leave a blank page.

This is our day and our civilization, are we

going to keep it, and bring it to a higher and higher standard? Or are we going to wreck it upon the racks of personal selfishness? To me there is no greater personal selfishness than that which demands that every individual and group of individuals be controlled and subservient to the small group who style themselves the government.

To me, the government means the people and those who administer the affairs of the people are their servants. A nation can only grow as its people grow and have the power of government invested in them. No man or small group of men have ever grown strong enough to think for the people; he or they must do as the people think.

Our present civilization is drifting toward the place where we are to be told by the few self-styled superminds that the masses are not capable of thinking for themselves and must be submissive to the small group. That each of us must wait to be told what to do, how to do it, and when to do it. Whatever the reason for doing it is no concern of ours, and the only personal rights that we have are the rights to obey orders.

If a civilization or nation can remain well nourished upon food of this character it will have done far better than any civilization or nation of the past has ever done. Such conditions produce mental poverty of those who govern and the governed, and poverty of any kind or character has never resulted in the best, but instead has only left the residue of the worst.

In the past our nation preserved the best in the individual. We have reversed this program and we are destroying the best and preserving the worst. We are saving the unfit at the expense of the fit. We have an emotional craze for the unfit, the down-and-out and the criminal, and the cost of it all must be borne by those who have an urge to make a better world.

C. S. Skaggs.

THE PROGRAM OF VENEREAL DISEASE CONTROL

In Retrospect: Until 1918 no serious attempt had ever been made to control venereal diseases. The campaign which began in that year, appealed to the patriotic sense of the public, which was then very strong.

Money was appropriated by Congress under the Chamberlain-Kahn act, and allotted to states in proportion to population, provided the states put up a like amount. The work was carried on fairly successfully for three years, when Congress, sensing the public demand for retrenchment, decided the venereal disease campaign was a war measure and failed to re-appropriate. The states lost interest and the public gradually recovered an embarrassment at the mention of gonorrhea and syphilis. Nothing was left of the program in the State of Illinois but a few scattered clinics.

The first attempt failed because it was not built on a solid foundation so the present fight will be lost, if steps are not taken to strengthen its groundwork, and enlist the entire medical profession in the program of control.

In the first campaign, too much stress was placed on the moral aspect of venereal diseases. The public will accept health regulations, but they reserve the right to regulate their own morals. The mere fact that it is often venereal in its origin should not hamper its control. A new trend of public opinion can be observed. This has been brought about by the spreading of knowledge relative to the cause, effects, prevention and treatment, all of which must be closely bound together in any program for the control of the disease.

The Present Campaign: The present movement is purely and simply a health campaign. Epidemiology is its most important feature. No public health work can succeed without the support of public opinion. The educational program of the present campaign has been carried on very vigorously. The Newspapers have been liberal with publicity so that few days have passed during the year of 1937 when no mention of the syphilis fight has been made. Lectures have been and are being given to audiences of lay persons in all walks of life. Special efforts are being made to reach those in the lower income groups, who by reason of their small earnings have not had the educational advantages which others have enjoyed. Motion picture films and lantern slides are used to illustrate these lectures. Pamphlets covering the various phases of venereal diseases programs are being distributed to the public. The plan for "refresher courses" is in the making, to which physicians will be invited

with a view to disseminating information concerning the up-to-date method of treatment of venereal diseases, and in stimulating the interest of the medical profession in obtaining information concerning sources of infection and contacts. Realizing that the publicity, together with the eduational measures, would greatly increase the demand for treatment, the State Department of Public Health has made preparations to take care of this demand by increasing the number of clinics for the indigent, and by furnishing free drugs to all physicians for treatment of all syphilitics. A good many physicians seem to be unaware that anti-syphilitic drugs, to meet all of the legitimate needs, may be had entirely free from the State Department of Public Health. There are no strings whatsoever attached to distribution of these drugs. The only requirement is, that the physician shows evidence of a need. This means merely that all cases must be reported and that each patient for whom drugs are requested must be identified by name, number or initial with each request for drugs. The financial ability of patient makes no difference whatsoever. The drugs are free for treatment of ALL syphilitic patients. Free distribution of these drugs has been undertaken by the State Department of Pubic Health, in order to make adequate, efficient treatment available to every infected patient in Illinois. The Director of Public Health reports that more than 18,000 new cases of the disease have been reported in the State to date, this year, evidence of the magnitude and seriousness of the problem.

Another service provided free by the State Department of Public Health, as a weapon against syphilis, is the laboratory testing of blood specimens, for detection of syphilis. It became necessary for the State Department of Public Health to increase the capacity of its laboratories to accommodate the great demand for blood tests. It had been the rule in the past, to run both a Wassermann and Kahn test, on all samples submitted. A Committee, including members of State Public Health Laboratories, and others, advised that the capacity of existing laboratories could be greatly increased by adopting the Kahn test as a standard and using the Wassermann as a check on all blood specimens resulting in a positive Kahn. This method has been adopted by the Committee of Laboratory Standards in the Department of Public Health.

To secure the highest possible efficiency in Laboratories, Dr. Reuben L. Kahn of the University of Michigan, Ann Arbor, Mich., the originator of the Kahn test, has been secured as Consultant and is now supervising the laboratory technique. His actual participation in the work assures accuracy, and will serve to create confidence in laboratory reports. The Division of Laboratories of the State Department of Public Health hopes to be able to furnish a standard Kahn antigen to all laboratories certified by the Department of Public Health. With a standard antigen and approved technique, uniform reports should be returned from all laboratories. This will result in much satisfaction to practitioners and physicians.

The Laboratory Standards Committee, augmented by the addition of Dr. R. Kahn, Dr. Harry Eagle, Consultant Bacteriologist of the United Staes Public Health Service, and Doctors Elliott and Applewhite of the United States Public Health Service, after much deliberation advised that the old method of reporting positive reactions as one plus, two plus, three plus and four plus, be abolished, using instead the clarified nomenclature of POSITIVE, DOUBTFUL and NEGATIVE. This recommendation was adopted by the State Department of Public Health.

In the future, when a physician receives a positive report on a Kahn Test, he will know that a Wassermann test on the same specimen has likewise resulted in a positive re-action. A "doubtful" will mean that the result is inconclusive and that another specimen should be submitted.

A "negative" report means that no evidence of syphilis is shown by the Kahn test. A negative result, however, does not exclude syphilis in an earlier and treated case, and is not an indication that sufficient treatment has been given.

To elucidate this method of reporting, the following explanation is to appear on the back of the report form.

EXPLANATION OF LABORATORY REPORT

Positive—Both a Kahn and a Wassermann Test have been performed on this specimen. Both are positive, or one is positive and the other strongly suggestive. Unless the clinical diagnosis or history definitely indicate syphilis, no patient should be treated for syphilis on the basis of a single specimen. *Confirm this*

result by a repeat specimen if there is any doubt as to clinical diagnosis.

Doubtful—The two tests used give an inconclusive result. This may or may not be due to the presence of syphilitic infection. This result calls for a careful clinical check-up and a repeat specimen.

Negative—The Kahn Test on this specimen gives no serologic evidence of syphilis. However, a negative result does not necessarily exclude the presence of syphilis, and in a patient under treatment, it does not necessarily imply cure.

I. H. Neece.

Correspondence

Benton, Ill.

MYASTHENIA GRAVIS

A Supplemental Report of a Case

To the Editor:

In the April issue of the Illinois Medical Journal, 1936, I reported a case of myasthenia gravis which had its incipiency many months prior to the report. Having never come in contact with a case of myasthenia gravis prior to this one, and the patient being a physician, Dr. J. O. Hart, and a friend of my home town, and having learned of the long, protracted course of the disease, I set about to learn more about its nature, course, treatment, etc.

I had reprints on myasthenia gravis from various sources in this country and foreign countries; and judging from the case reports which were collected it appeared to be a disease which runs a course of several years. Some of the cases reported confined the patients in bed, requiring a constant attendant from five to seven years. It appeared from the reports that the usual treatment did little, if anything, to shorten the course of the disease.

This patient had taken glycocoll to the amount of fourteen pounds with no appreciable improvement. In some of the reports from research centers, Mayo's and others, it appeared that a bacterial cause had been attributed to myasthenia gravis, and it was thought that some cases had as the primary cause an infection.

Having used Edwenil for more than two years, in endotoxic infections with the most marked good results, I resolved to give Edwenil a tryout in myasthenia gravis. Accordingly Dr. Hart has received 2cc's daily for more than twelve months. For the first two or three days the secretion in the nose and throat was increased; then followed a rapid decline in secretions, and soon the patient was quite comfortable in that respect, and was no longer forced to constantly use Kleenex or cloth on the fingers to be removing accumulated secretions from the mouth, pharynx, nose and throat. The eyes ceased overflowing, the congestion of the conjunctiva subsided, and the condition of the patient was rendered more comfortable in most every way.

Since beginning the use of Edwenil the patient has gained forty pounds in weight, his strength has increased so much as to enable him to be up for hours at a time, and he has for the past month or two been able to make short calls upon his neighbors.

It might be mentioned that if the Edwenil is omitted for a day or two, the eyes and throat become congested and the secretions increased. however, a return to the daily dose of Edwenil clears them up.

So far as the writer knows the use of Edwenil in the treatment of myasthenia gravis is an extraordinary treatment, and the results in this case seem to be confirmatory of the infection theory, at least in this individual case.

If other physicians who treat myasthenia gravis should find that Edwenil gives the comfort, satisfaction and other improvements that have come to this patient by its use, I feel that it would be timely to make the results known to the profession through the columns of the Illinois Medical Journal.

W. H. Smith, M. D.

AMENDMENT TO TYPHOID RULES

Amending "MANUAL AND OUTLINE OF PROCEDURE FOR HEALTH OFFICERS FOR THE CONTROL OF COMMUNICABLE DISEASES", Revised and in force on and after April 30, 1935, throughout Illinois, as follows:

Page 125, paragraph 2 at top of page, omit the first sentence, "IMMUNIZED INMATES OF THE PREMISES, EXCEPT FOOD HANDLERS, MAY GO ABOUT THEIR USUAL BUSINESS, PROVIDED THEY DO NOT COME IN CONTACT WITH THE PATIENT," and add instead the following: "IMMUNIZED INMATES OF THE PREMISES, EXCEPT FOOD HANDLERS, PROVIDED THEY HAVE SUBMITTED TWO SPECIMENS OF FECES AND URINE AT INTER-

VALS OF TWENTY-FOUR HOURS TO THE LABORATORIES OF THE ILLINOIS DEPARTMENT OF PUBLIC HEALTH MAY GO ABOUT THEIR USUAL BUSINESS PROVIDED THEY DO NOT COME IN CONTACT WITH THE PATIENT," so that the paragraph in which this corrected sentence appears will read as follows:

"Immunized inmates of the premises, except food handlers, provided they have submitted two specimens of feces and urine at intervals of twenty-four hours to the laboratories of the Illinois Department of Public Health may go about their usual business provided they do not come in contact with the patient.

"All immunized contacts in the home, who are engaged in the production or handling of milk, cream, milk products, and other foods likely to be consumed raw, and who have submitted two successive negative specimens of feces and urine taken not earlier than four days apart, specimens to be collected from the second or third bowel movement after a cathartic has been given, with permission of the local health authority, may be permitted to leave quarantine premises to live at some other address so that they may resume their usual occupations, provided they do not come in contact with any member of the family under quarantine and do not return to their former place of residence until termination of quarantine."

Above regulations amended and promulgated, October 6, 1937.

A. C. Baxter, M. D.,
Acting Director, Illinois Department,
of Public Health, Springfield.

SCIENTIFIC EXHIBITS

Your committee is now soliciting scientific exhibits for the meeting at Springfield, May 17, 18, 19, 1938. Such exhibits have proven of great interest at the past meetings and have improved in quality from year to year. We want to make the scientific exhibit at Springfield the best so far.

If you have nothing for the scientific exhibit, possibly some organization with which you are associated would have something that might be exhibited in the Hall of Health which is to be open to the public. This public exhibit is to educate the public with respect to the advances that have been made in our knowledge of disease and its prevention; the scientific exhibits to present the results of recent investigations to the profession.

Silver and bronze medals and certificates of merit are made to exhibits of individual investigations based on excellence of presentation and on originality, to exhibits that do not exemplify purely experimental studies on the basis of excellence of presentation.

If you are interested, write for "Application for Space in the Scientific Exhibit", to N. S. Davis, III, M. D., 700 North Michigan Avenue, Chicago.

DOCTORS WISHING TO PRESENT PAPERS AT ANNAL MEETING

The program for the Medical Section of the Illinois State Medical Society is now in the course of preparation. Doctors who wish to present papers should send a title and an abstract before January 1, 1938.

Men living outside of Chicago should communicate with:

Dr. Cecil M. Jack,
Decatur, Illinois.

Men living in Chicago should communicate with:

Dr. Robert W. Keeton,
8 S. Michigan Ave., Chicago, Ill.

PAPERS TO BE PRESENTED BEFORE SECTION ON RADIOLOGY ILLINOIS STATE MEDICAL SOCIETY

The officers of the section on Radiology of the Illinois State Medical Society which meets in Springfield, May 17, 18, and 19, 1938, will welcome speakers who wish to appear on the program of this section.

Any physician desiring to present a paper before this section should write to the secretary, Dr. Harry B. Magee, 600 Alliance Life Building, Peoria, Illinois, announcing the title of the paper and submitting a short abstract of the subject matter to be discussed.

PHYSICIANS WHO WISH TO PRESENT PAPERS AT ANNUAL MEETING OF EYE, EAR, NOSE AND THROAT SECTION

The officers of The Eye, Ear, Nose and Throat Section of The Illinois State Medical Society desire to announce that they are preparing the Section Program and completing other arrangements for the Meeting, which is to be held at Springfield, Illinois, May 17th and 18th, 1938.

You are urged to communicate with the Secretary at once with reference to any contribution from you for a place on the Program, submitting the title and synopsis of the paper for consideration. Each speaker will be given 20 minutes to present his suggestions and a subsequent discussion limited to 3 minutes each.

Samuel J. Meyer, M. D.,
Secretary of Section.
58 East Washington St., Chicago, Ill.

EDUCATIONAL COMMITTEE

Report for November, 1937

PRESS SERVICE:

The Educational Committee has increased its service to the newspapers of Illinois and their response is most encouraging. Headlines given the material are attractive and important space in many of the newspapers is devoted to these articles dealing with medical and public health questions.

784 copies of this material were released to Illinois newspapers.

2,388 copies were sent to libraries, home advisers, health chairmen, teachers and WPA leaders as well as to officers of county medical societies.

Articles were written on the following subjects:

Measles
The Blood Count
Going a Hunting
Are Winter Epidemics Necessary
Medical Service in the United States
You and Your Automobile
Cancer Mortality High
Running Ears
Eyes and Eye Glasses
Eye Examinations

In addition to the above type of service, announcements were released about county medical meetings as follows:

153 newspaper releases about meetings of Effingham, Mason, Henry, the Tri-County and the Chicago Medical Society.

RADIO:

19 radio programs were given over stations WBBM, WGN, WJJD and WAAF.

500 copies of the radio schedules were sent to interested individuals in the state.

SPEAKERS BUREAU:

46 speaking appointments were arranged for lay groups. The Committee is prepared to fill all requests which come in, and county medical societies are urged to let their local lay groups know of this service. Health programs are popular and the subjects which have to do with the relationship of medicine to the public are particularly appropriate at this time. Men's clubs are especially interested in this type of program. Many excellent speakers are available.

ASSISTANCE TO COUNTY SOCIETIES:

Radio talks were furnished Vermilion and McLean County Medical Societies.

Assistance was given in promoting the public meetings sponsored by the Chicago Medical Society.

514 invitations were prepared and mailed concerning meetings of Henry, Effingham and Mason County Medical Societies.

PROGRAMS ON OBSTETRICS AND PEDIATRICS:

28 speakers were scheduled for talks in November.

371 releases announcing the meetings were sent to newspapers.

1,443 invitations were mimeographed and sent to doctors.

Programs have been arranged for La Salle, Coles-Cumberland, Lee-Whiteside, Hancock, Jefferson-Hamilton-Wayne, Lawrence-Crawford-Jasper County Medical Societies.

Other series of programs are now being planned for several of the Southern counties and Iroquois County Medical Society.

MISCELLANEOUS:

Moving picture films have been secured for a number of groups.

Arrangements have been made for Exhibit Material for Y.M.C.A.s.

Information concerning the work of the Committee has been supplied a number of other state medical societies.

SCIENTIFIC SERVICE:

22 programs were arranged for County Medical Societies.

The Scientific Service Committee is prepared to assist any county society in planning suitable programs. An excellent list of speakers is on file in the office of the committee, and speakers are available in all sections of the state.

WRITTEN EXAMINATION

The American Board of Internal Medicine will hold its next written examination on Monday, February 14, 1938, in various centers of the United States and Canada.

The examination will consist of two sessions of three hours each, with the morning session held at 9:00 o'clock a. m., and the afternoon session held at 2:00 o'clock p. m.

The candidates who are successful in this written

examination will be eligible to take the practical examination, which will be held in San Francisco the Friday and Saturday prior to the opening of the Annual Session of the American Medical Association in June, 1938.

The final date for filing applications for this written examination is January 15, 1938, and all applications should be in the office of the chairman before that date.

For further particulars and application blanks please address

Dr. Walter L. Bierring, M.D., Chairman,
American Board of Internal Medicine,
Suite 1210, 406 Sixth Avenue,
Des Moines, Iowa.

ANNUAL MEETING OF THE MISSISSIPPI VALLEY MEDICAL SOCIETY

The fourth annual meeting of the Mississippi Valley Medical Society will be held at the Hannibal-LaGrange College, Hannibal, Mo., Sept. 28, 29, 30, 1938. The following officers have been elected for 1938:

President—Charles S. Skaggs, East St. Louis, Ill.

President-Elect—M. Pinson Neal, Columbia, Mo.

First Vice President—Arthur H. Bitter, Quincy, Ill.

Second Vice President—W. F. Francka, Hannibal, Mo.

Third Vice President—Edward M. Myers, Boone, Iowa.

Secretary-Treasurer (re-elected)—Harold Swanberg, Quincy, Ill.

The members of the recently elected Board of Directors are:

For Illinois: G. M. Cline, Bloomington; E. P. Coleman, Canton; E. C. Kelly, Peoria; C. J. White, Chicago; A. E. Walters, Springfield; F. Garm Norbury, Jacksonville.

For Missouri: H. B. Goodrich, Hannibal; E. S. Smith, Kirksville; Ernest Sachs, St. Louis.

For Iowa: W. A. Sternberg, Mt. Pleasant.

MISSISSIPPI VALLEY MEDICAL SOCIETY ESSAY AWARD

The Mississippi Valley Medical Society offers a cash prize of $100.00, a gold medal and a certificate of award for the best unpublished essay on a subject of interest and practical value to the general practitioner of medicine. Entrants must be ethical licensed physicians, residents of the United States and graduates of approved medical schools. The winner will be invited to present his contribution before the next annual meeting of the Mississippi Valley Medical Society at Hannibal, Mo. (September 28, 29, 30, 1938), the Society reserving the exclusive right to first publish the essay in its official publication—the Radiologic Review and Mississippi Valley Medical Journal. All contributions shall not exceed 5000 words, be typewrtten in English in manuscript form, submitted in five copies, and must be received not later than May 15, 1938. Further details may be secured from

Harold Swanberg, M. D., Secretary,
Mississippi Valley Medical Society,
209-224 W. C. U. Building, Quincy, Ill.

A SYMPOSIUM ON SYPHILIS

The section on Medical Sciences of the American Association for the Advancement of Science will sponsor a symposium on syphilis at the next Annual Meeting to be held in Indianapolis, Ind. December 27-January 1, 1938.

MAKE HOTEL RESERVATIONS FOR 1938 AMERICAN MEDICAL ASSOCIATION ANNUAL SESSION

The Board of Trustees of the American Medical Association has appointed Doctor Howard Morrow of San Francisco as General Chairman of the Local Committee on Arrangements. Among other appointments of local sub-committees, Doctor Morrow has appointed Doctor F. C. Warnshuis, Chairman of the local committee on Hotels.

Fellows are requested to send in their requests for hotel accommodations to Doctor F. C. Warnshuis, Suite 2004, 450 Sutter Street, San Francisco, California, giving names of members in party, type of accommodations desired, time of arrival and departure.

Assignment of accommodations and their confirmation will be made for each reservation request. Do not write directly to any hotel as *all* reservations will be cleared through the Hotel Committee.

Banquet Rooms and Special Dinners reservations must be made through the Hotel Committee. The same rule applies to special boards and allied organizational groups.

San Francisco affords first-class hotels capable of providing accommodations for 15,000 fellows and members of their families. However, early reservations are requested to avoid confusion and to insure individual choice. A pleasing surprise awaits every fellow in the hotel accommodations of the Golden Gate City.

Those planning to visit San Diego, Los Angeles, Santa Barbara, Del Monte, Yosemite, or other California cities are urged to write in advance for hotel reservations in these cities. Following the American Medical Association Annual Session, the Rotary, Kiwanis, and Shriners hold their annual sessions in California. It is quite probable that many of the members of these organizations will visit points of interest before their conventions, thereby creating heavy demands on local hotels throughout the State.

THE WOMEN'S FIELD ARMY PROGRAM AND THE PHYSICIAN

After a year's experience in nearly forty states the Women's Field Army Against Cancer of the American Society for the Control of Cancer is extending its work

into practically every state. This program is unique in the history of health education movements in that *from the beginning* the medical profession has been asked to direct the work. In every state lay leaders have been appointed only with the approval of the medical organizations.

In this Women's Field Army plan lay speakers are discouraged from speaking on the scientific aspects of cancer. This phase of the program has been placed in the hands of physicians in the belief that a physician is the properly qualified person to discuss this subject before public groups. The activities of lay workers are restricted to organization and other problems. It is thus seen that the program is being developed along lines most favorable to the physician. By this same token there is placed on the physician the responsibility of making the program as effective as possible.

The program is built around the fact that early cancer is curable, and to detect it in early stages the periodic examination of the apparently well individual must be employed. As a result of the public discussion of this subject thousands of persons for the first time have sought examination by their physicians to determine the presence or absence of cancer. As the program develops thousands more will ask for this same service. This makes it essential that physicians be on the lookout for precancerous lesions as well as signs of early cancer, and conduct these examinations in as thorough and painstaking a manner as possible. A patient requesting such an examination is entitled to the best service the physician can give, regardless of objective absence of disease. After obvious signs of cancer appear it is often too late to render a curative service; therefore no physician should make light of any patient's request for an examination.

No physician should hesitate to avail himself of facilities for obtaining the answer to the patient's problem when they are not at his immediate disposal. The diagosis and treatment of cancer is a group problem, and no physician has the ability alone to cope adequately with all forms of this disease.

One criticism emanating from medical sources is that a lay cancer educational program will create a cancerphobia in the public mind. In answer it should be remembered that an intelligent request for information about cancer is not cancerphobia; also, that cancerphobia never metastasizes and never kills.

Another criticism coming from a few laymen is that this emphasis on periodic examinations is but a dodge on the part of the medical profession to increase its income. Such criticism should not be taken seriously, and should be answered by pointing out that only by early diagnosis and treatment can the cancer patient be saved from an untimely death. If the profession wanted to profit from this situation it could do so in far greater measure by neglecting the early stages of cancer knowing that the care of the incurable patient would be far more prolonged and remunerative.

With this opportunity for constructive participation in a nation-wide health education movement the physicians of Illinois should see to it that no patient is denied the fullest measure of service within the power of physicians to render. Only by such a service can they expect to retain direction of this program.

HOFFMANN-LA ROCHE TAKES OVER NEW INDUSTRY

Hoffmann-La Roche, Inc., announce the formation of The Roche-Organon Company, a new company which will undertake the manufacture and distribution of the world-famous Organon hormone products in America. Plans were recently completed in The Hague for this collaboration of the Organon Laboratories of Holland with Hoffmann-La Roche, Inc., of Nutley, New Jersey, which will make hormonal therapy available to American physicians on a hitherto unattainable scale.

Many Organon products are well-known to American physicians. A few of the widely prescribed preparations which will not be manufactured and distributed by Roche-Organon are the estrogenic hormones, Di-Menformon and Progesterone; the synthetic male sex hormone, Neo-Hombreol; the gonadotropic hormone of pregnancy urine, Pregnyl; the vital hormone of the adrenal cortex, Cortin; and antianemic liver and stomach preparations of unusually high potency and purity for the treatment of pernicious anemia. Throughout Europe the Organon company is recognized as a leader in endocrine research and in the production of hormones. It includes in its staff several internationally famous endocrinologists. The scientific advisor, Professor Laqueur, who has been in the forefront of endocrine research, is also Director of the Pharmacological Laboratory of the University of Amsterdam and the president of the university.

UNITED STATES CIVIL SERVICE EXAMINATIONS

PRINCIPAL SPECIALIST IN MATERNAL AND CHILD HEALTH, $5,600 A YEAR

SENIOR SPECIALIST IN MATERNAL AND CHILD HEALTH, $4,600 A YEAR

SPECIALIST IN MATERNAL AND CHILD HEALTH, $3,800 A YEAR

ASSOCIATE IN MATERNAL AND CHILD HEALTH, $3,200 A YEAR

Optional Branches

1. Pediatrics.
2. Obstetrics.
3. Orthopedics.
4. General (Maternal and Child Health).
5. Psychiatry for children.

Children's Bureau, Department of Labor

Applications must be on file with the United States Civil Service Commission at Washington, D. C., not later than the following dates—

(a) *December* 28, 1937, if received from States other than those named in (b), below.

(b) *December* 31, 1937, if received from the following States: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

The United States Civil Service Commission an-

nounces open competitive examinations for the positions named above. Vacancies in these positions in Washington, D. C., and in the field, and in positions requiring similar qualifications, will be filled from these examinations, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. The salaries named above are subject to a deduction of 3½ per cent toward a retirement annuity.

Employment lists.—For each of the above-named optional branches, employment lists will be established, based upon the experience shown by applicants, as follows:

For positions in (a) *Administration*—Principal Specialist in Maternal and Child Health, Senior Specialist in Maternal and Child Health, and Specialist in Maternal and Child Health.

For positions in (b) *Research*—Senior Specialist in Maternal and Child Health, Specialist in Maternal and Child Health, and Associate in Maternal and Child Health.

Applicants should indicate in their applications the optional branch or branches chosen and the lowest salary they are willing to accept.

ASSOCIATE BIOCHEMIST (SYPHILIS RESEARCH), $3,200 A YEAR

U. S. Public Health Service, Treasury Department

Applications must be on file with the United States Civil Service Commission at Washington, D. C., not later than the following dates—

(a) *December* 28, 1937, if received from States other than those named in (b), below.

(b) *December* 31, 1937, if received from the following States: Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

The United States Civil Service Commission announces an open competitive examination for the position named above. Vacancies in this position in Washington, D. C., and in the field, and in positions requiring similar qualifications will be filed from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. The salary named above is subject to a deduction of 3½ per cent toward a retirement annuity.

Present vacancy.—A vacancy exists in the Syphilis Research Center, Johns Hopkins Hospital, Baltimore, Md.

Duties.—To conduct investigative or research work in antibody chemistry, pollen chemistry, the chemistry of the arsphenamines, or related problems.

Basis of ratings.—Competitors will not be required to report for examination at any place, but will be rated on the extent and quality of their education and experience which are relevant to the duties of the position, on a scale of 100, such ratings being based upon competitors' sworn statements in their applications and upon corroborative evidence.

Statements concerning experience will be corroborated by the Commission; exaggeration or misstatement will be cause for disqualification.

Application forms.—The necessary forms may be obtained from the *Secretary, Board of United States Civil Service Examiners, at any first-class post office,* from the United States Civil Service Commission, Washington, D. C., or from the *United States Civil Service district office* at any of the cities given below (the title of the examination desired should be stated):

Atlanta, Ga., New Post Office Building.
Boston, Mass., Post Office and Courthouse Building.
Chicago, Ill., New Post Office Building.
Cincinnati, Ohio, Post Office Building.
Denver, Colo., Post Office Building.
New Orleans, La., Customhouse.
New York, N. Y., Federal Building, Christopher Street.
Philadelphia, Pa., Old Post Office Building.
Seattle, Wash., Federal Office Building.
St. Louis, Mo., New Federal Building.
St. Paul, Minn., New Post Office Building.
San Francisco, Calif., Federal Office Building.
Honolulu, T. H., Federal Building.
Balboa Heights, Canal Zone, *Secretary, United States Civil Service Board.*
San Juan, P. R., *Chairman, Puerto Rican Civil Service Commission.*

The exact title of the examination, as given at the head of this announcement, should be stated in the application form.

EXAMINATION FOR ENTRANCE INTO THE MEDICAL CORPS OF THE NAVY

An examination of candidates for appointment as Lieutenant (junior grade), in the Medical Corps of the Navy, will be held at all Naval Hospitals in the United States and at the Naval Medical School, Washington, D. C., Beginning May 16, 1938.

Candidates for admission must be between the ages of 21 and 32 years at time of appointment, graduates of Class "A" medical schools, and have completed an internship of one year in a hospital accredited for interns by the American Medical Association and the American College of Surgeons.

Those who are interested should write the Surgeon General, U. S. Navy, Bureau of Medicine and Surgery, Navy Department, Washington, D. C., for further information in regard to the examination and the procedure to follow for them to appear before one of the Examining Boards.

REMOVING ADHESIVE PLASTER

For the painless removal of adhesive plaster, it should be thoroughly moistened with commercial carbon tetrachloride, which costs about 25 cents a pint. For use on sensitive patients who might object to its odor, it can readily be perfumed (neo-gardenia is good), and if its nature is to be kept secret it can be colored. A commercial preparation so treated sells for $1.33 a pint.—Louis W. Schwindt, M. D., in *J. A. C. Pract.*, May, 1936.

CONTROL OF SYPHILIS: CLINICAL LECTURE AT ATLANTIC CITY SESSION

Thomas Parran, Washington, D. C. (*Journal A. M. A.*, July 17, 1937), believes that in a country as diverse as this, no one stock plan of syphilis control is applicable. In each state and in each city the problem needs to be studied and a plan of action developed to meet particular local needs. Certain basic principles, however, have general application. These principles may be summarized briefly as follows: 1. There should be a trained public health staff to deal with syphilis in each state and city. 2. Minimal state laws should require reporting of cases, follow up of delinquents, and the finding of sources of infection and contacts. 3. Premarital medical certificates, including serodiagnostic tests, should be a legal requirement. 4. Diagnostic services should be freely available to every physician without charge and should meet minimal state standards of performance. 5. Treatment facilities should be of good quality, with convenient hours and location. Wherever possible the clinic service should be a part of an existing hospital dispensary. Hospital beds should be provided for patients needing bed care. 6. The states should distribute antisyphilitic drugs to physicians for the treatment of all patients. 7. Routine serodiagnostic tests need to be used much more widely. In particular, every pregnancy, every hospital admission, every complete physical examination should include this test. 8. The informative program in modern diagnosis, treatment and control should be prosecuted vigorously among physicians and health officers, especially through the use of trained consultants. 9. The public educational program must be persistent, intensive, and aimed especially at those individuals in the age groups in which syphilis is most frequently acquired. If these principles are applied to meet varying local conditions, no one can doubt that the shadow of syphilis will be lifted from the land. The object of the Public Health Service in fighting syphilis is identical with the historic objective of the medical profession. It is not to make industry more efficient, though it is hoped that it will. It is not to save Americans money, though success will save them very much. It is not to make any one more comfortable and contented, though syphilis causes much discomfort and discontent. It is to make the lives of Americans more healthful and more secure.

ACCIDENTAL DEATHS INCREASE

The National Safety Council recently issued its annual compilation of statistics on accidents giving data for 1936. The report shows that 111,000 persons met accidental deaths in 1936, one death every five minutes. There were 10,730,000 persons injured, with permanent disability in 400,000 cases. The accident death rate was 86.4 per hundred thousand persons, an increase of 10 per cent over the previous year; approximately half this increase was attributed to the excessive heat of 1936, the report pointed out, about five times the usual average number of deaths being credited to that cause. Fatal traffic accidents increased to a new high point of 37,800, but they were exceeded by home accidents, which killed 38,500. Falls killed more persons than any other accidental cause except traffic accidents; 47 per cent of the victims were women. Deaths from occupational accidents reached 18,000 in 1936, as compared with 16,500 in 1935. Fatalities in the classification "public, not motor vehicles," rose 11 per cent from 18,000 in 1935 to 20,000 in 1936. Mishaps in this group covered such occurrences as drownings, poisonings and fire arms accidents not covered by the other three groups and that did not involve a motor vehicle. Children from 5 to 14 years old showed the best record, a death rate of 34.6 per hundred thousand. Younger children had a rate of 76.3, and rates for other age groups were as follows: from 15 to 24, average 56.7; from 25 to 64, average 81.1, and above 65, average 398.1. A comparison of rates for men and women showed that accidents last year killed 110.2 men in every hundred thousand and only 46.1 women. The number of men killed was greater than the number who died of any disease except heart disease. Arizona had the highest accident rate for all types of accidents, 165.5 deaths per hundred thousand persons, and Rhode Island the lowest, 59.3.

THE ROLE OF LACTOBACILLUS ACIDOPHILUS IN THE TREATMENT OF DISORDERS OF THE DIGESTIVE TRACT

W. H. Pipes and W. L. Owen (New Orl. M. and S. J. 89:355, January 1937).

Since the discovery of the L. acidophilus by Moro nearly four decades ago, numerous investigators have shown that this aciduric organism has a favorable effect in the human intestinal tract, that its value is enhanced when lactose is also ingested, that the administration of large numbers of the organism permanently alleviates constipation and diarrhea, and that the L. Bulgaricus can not be implanted in the human intestine.

Milk is the logical carrier and the ideal substrate for the cultivation of L. acidophilus, but the milk used must be free of other bacteria that may interfere with the growth of this organism, and it must not be contaminated by copper. Incorporation of L. acidophilus in tablets, chocolate, and similar media other than milk has not proven successful, but it may be combined with yeast.

MASS ASSAULT CAN MOVE MOUNTAINS

"To abstain from medical activities under present menacing conditions is a wasteful squandering of that valuable asset of good teamwork at the very time when collaboration is absolutely vital. One does not change horses in the middle of the stream. When out in mid-ocean in a storm you do not see anybody shoving off in a rowboat by himself to save passenger money. Present conditions make mass action imperative and mass assaults can move mountains. Few, if any, can deny need for maintenance by the medical profession of the strongest possible organization—strong in numbers, militant in spirit and untiring in its concerted efforts to protect the interests of the medical profession and in so doing the interests of the community."—Charles J. Whalen.

Original Articles

ACUTE INFECTIONS OF THE UPPER LIP

J. Norman Elliott, M. D.

BLOOMINGTON, ILL.

The purpose of this paper is to call attention again to infections of the upper lip and of the face in the so-called danger area. Hunter defines this danger zone "as the area between the hair line of the forehead above and chin below, with two parallel lines connecting this area at the outer wall of the orbits on each side." Roberts considers a carbuncle of the face as one of the most dangerous of all infections and advises hospitalization for every case.

In spite of the fact that these lesions have been considered dangerous for many years, comparatively little as to their serious nature is known by the laity. To anyone who has seen one or more of these cases go on to a fatal termination it seems that a wider knowledge of the subject and constant emphasis by medical men upon the danger of traumatization of infections of the upper lip and face would save many lives. Cutler observes that it is well to know when not to indulge in surgery, and points out that the treatment of simple infections often needs the greatest care and wisdom.

The importance of this subject was first impressed on my mind during my internship at Wesley Memorial Hospital seventeen years ago. One of my fellow interns developed a furuncle close to the center of the left cheek. Gradually the area around it became inflamed and tender so that there was obvious swelling and elevation of the tissues about the small central area of acute inflammation. He went to Dr. Kanavel and asked what he should do; and Dr. Kanavel replied, "Go to bed immediately. Put on a big warm wet dressing, and don't let anyone touch it with a knife." Instead of taking that advice he went to his home, persuaded someone to incise it. Three days later he succumbed to a rapidly spreading infection and septicemia.

Some time later a young woman from Gary, Indiana, was admitted to the hospital on Dr. Kanavel's service. She had had a furuncle of the right side of the upper lip. She had squeezed it in the hope of expressing pus, and subsequently a doctor had repeated the procedure. When she came to the hospital the entire face was tremendously swollen and dusky from congestion. The eyelids were closed and the contents of both orbits were protruding as though pushed forward by great pressure behind them. She died within twenty-four hours after admission. The autopsy showed thrombosis of both cavernous sinuses.

A third case with a similar fatal complication came under my observation a few years ago in Detroit. We had a patient admitted to the hospital with an infection of the upper lip. Temperature was about 101, pain was severe, terrific headache, and considerable edema of the upper lip. This infection was incised by the house physician. After the incision, the infection spread rapidly and within four days the patient succumbed to a general septicemia.

Anatomy. A consideration of the anatomy, first of all, is necessary to an understanding of the severity of the lesions under consideration.

The upper lip and nose are covered by loose skin and subcutaneous tissue. Underneath them are the muscles of expression. These muscles take their origin in the bones of the face and insert into the deep portion of the skin. A rich plexus of vessels lies deep in the muscles of expression surrounded by subcutaneous tissue. The skin especially of the upper lip is in constant motion and this tends to prevent localization of infection.

The venous drainage of this area is through the facial vein which normally flows into the internal jugular. The angular vein, a tributary of the facial, anastomoses with the superior ophthalmic vein which empties into the cavernous sinus. Thus the drainage from the upper lip and face communicates with the cavernous sinus. Normally the blood from the face does not drain into the cavernous sinus, but when the facial vein or its contributaries are obstructed by thrombophlebitis or edema the current may be reversed and septic emboli pass into the cavernous sinus with a resulting bacterial meningitis, or a sinus thrombosis. Progressive thrombosis of the facial, angular and superior ophthalmic veins may involve the cavernous sinus. Another point brought out by Cutler is the presence of a small anastomosis between the facial

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vein and the inferior orbital vein, and a deeper communication between the pterygomaxillary veins and the cavernous sinus. The veins themselves have no valves and the flow is slow.

For some reason not understood, but possibly to prevent respiration from exerting too sudden an effect on intracranial pressure, the cavernous sinus itself has a peculiar structure. It is cut up into many contiguous compartments which greatly impede the flow of blood.

Etiology. The causative organism of these infections is the staphylococcus aureus. There can also be a streptococcus infection, as pointed out by Collear, that enters cracks or fissures of the skin that may develop into erysipelas. However, the infections that form the carbuncles have nearly all proved to be due to staphylococcus aureus. The atrium may be through a scratch, abrasion or minor injury and is usually along a hair follicle or sebaceous gland. Immunity to this organism is not ordinarily present in the blood. Koslin has made a significant point in that he has never been able to find a case reported in a patient under twelve. This would confirm the impression that the infection gains entrance through the hair follicles and sebaceous glands, as they are not well developed before puberty. Diabetes is not a contributing factor in infections of the face but, as Totten has pointed out, high blood sugar in normal individuals contributes to repeated attacks of staphylococcus infections.

Symptoms. Any infection of this area, no matter how insignificant in the beginning, may develop into a major surgical tragedy. In careful questioning of patients that develop severe infections of the upper lip, a history of some trauma, even if slight, can usually be elicited. Totten makes the point that in a certain percentage of cases, however, there is no history of trauma. Patients are usually acutely ill when seen by the physician. The swelling, redness and edema are marked. The severe cases may have a chill. Fever may range from one to six degrees above normal. The pulse is usually rapid. Most patients complain of headache, which becomes severe. The symptoms will either begin to abate if the condition localizes or will become more severe with conjunctival injection, paralysis of ocular muscles, and other signs of cerebral invasion. Bailey states, "The sign which foretells impending danger is the spreading edema from the lip to the inner canthus in the presence of suffusion of the eyelids." This sign with considerable elevation of temperature is Bailey's indication for ligation of the angular vein. When the cavernous sinus is thrombosed the ocular muscles became paralysed by involvement of the nerves in the sheath of the sinus. With thrombosis of the ophthalmic vein and choking of the disc, vision is lost.

Treatment. Gamble divides infections of the face into three stages, namely:

1. Stage of pimple or papule formation.
2. Stage of extension.
3. Terminal stage of cavernous sinus thrombosis, septicemia or meningitis.

Collar's treatment is outlined as follows:

1. No pimple or pustule of the face should be squeezed or traumatized.
2. Any infection larger than a pimple should be treated according to the following plan:
   a) Rest in bed in hospital,
   b) Early radio therapy,
   c) Reduction of activity to a minimum, with no talking and with nasal feeding, if necessary,
   d) Application of hot wet packs.
3. When signs and symptoms show generalized infection the question of ligation of the angular vein arises.

During the first stage of pimple or pustule formation there is no doubt that we as physicians can do a great service by warning our patients about the dangers of these infections. Too few people know of the danger of these infections and a very emphatic statement from the physician will warn patients against traumatising them. Usually the explanation of the anasotomosis of the angular and ophthalmic veins and the dangers of the infection going to the cavernous sinus and the brain will suffice to awaken in the patient a consciousness of the dangers of any trauma.

No matter how slight the lesion, the patient should be advised to use hot wet packs on his face and avoid any trauma.

In the stage of extension, the patient should be hospitalized if at all possible. Hot wet packs of either boric solution or magnesium sulphate should be continuously applied. The diet should be liquid or soft so that there will be no chewing. A small duodenal tube can be passed into the stomach if necessary, either through the nose or mouth, depending on the site of the lesion. Supportive measures of any kind are indicated. Insulin in small doses can be given if patients have a high blood sugar but are not diabetic. If one likes foreign protein it can be given and many men report favorable results from its use. X-ray has been used with great success during this stage. Whitemore of the U. S. Navy advises the use of x-ray and urges that it be used early. He uses one half to one erythema dose of x-ray and states that the pain is usually relieved. If the pain is not relieved he considers the treatment a failure.

This conservative type of treatment has by far the largest group of followers. Koslin in 1931, reporting 18 cases from Lebannon Hospital, advised hot packs and gave instructions to the house staff forbidding expression of pus or slough or the use of the scalpel. He feels that the scalpel goes beyond the affected area and opens lymphatic and venous channels.

Cutler states that in 23 cases of serious infection of the lip, nose and cheek at Peter Bent Brigham hospital, either carbuncle or cellulitis, there was a mortality of 30.4%. In ten cases treated by simple surgical procedure the mortality was 50% as compared with 21.7% in untreated cases.

Martin advises strongly against early operation despite the fact that the doctor is urged to do something. He feels that it is dangerous to try to abort these early furuncles with phenol.

Dettrich, reporting in 40 cases of carbuncle of the upper lip, found a mortality of 5.5% in 18 cases treated without incision while in 22 cases treated by incision the mortality was 13.6%.

In an article in the J. A. M. A. of June 13, 1937, Ayres Anderson and Foster, in dealing with treatment of carbuncles, stress conservative treatment. They use x-ray of one-fourth to one-half skin unit to affected area, autogenous vaccine, wet dressings of Alibour water and late incision if pus is present.

Totten, in a very excellent paper in 1935, combines a conservative treatment in the early stages with a cautery puncture. In 15 of the 31 cases the use of hot continuous boric acid or magnesium sulphate solution with complete anatomical and physiological rest was all that was necessary. In cases which do not respond to this treatment he uses cautery puncture.

Among those who advocate a radical procedure are Powers, Sheeley, and Bradburn.

In cases in which the general circulation has been invaded and in those cases in which the cranial cavity has been invaded any form of treatment will be discouraging.

Summary. The whole subject of treatment can be summed up admirably in the words of Dr. Blair: "I have never seen a fatal result in a case treated conservatively by non-operative measures, that is, which has not been pinched, injected, incised, or otherwise traumatized either by the patient or surgeon; and every fatal case that has come under my observation has been subjected to some one of the above procedures. This condemnation of surgical interference does not apply to well developed abscesses in which there has been sufficient time for the development of a protective surrounding wall, nor to the destruction of the whole infected area by the use of an actual cautery."

When one contrasts the results obtained by Blair with the tragic results of the three cases described at the outset one naturally turns to a conservative plan of treatment.

In a small series of cases that have been under our observation, and in a further series of cases under the care of other surgeons with whom I have been in touch, conservative treatment—i. e., the application of massive, warm wet sterile dressings, the application of heat over the dressings with the help of an infra-red light or a large electric bulb suspended over the dressing, and abstinence from active surgical treatment except the gentle removal with sterile forceps of obviously necrotic tissue which might be blocking drainage—has consistently produced satisfactory results and eventual healing without disability and with little scar formation.

I wish to express my appreciation for the advice and help of Dr. Sumner L. Koch in preparing this paper.

FUNDAMENTALS OF SERUM THERAPY

WINSTON H. TUCKER, M. D.

Coordinating Epidemiologist, Illinois Department of Public Health

SPRINGFIELD, ILL.

Within recent years, the employment of serums of various types in the control and treatment of infectious diseases has made rapid advances. Inasmuch as the State Department of Public Health distributes certain serum preparations to the medical profession of the state without charge, it was felt that a review of the field of serum therapy and prophylaxis was indicated at this time. An attempt will be made to indicate which serum preparations are of distinct value, and to separate from this group those preparations which are of doubtful value, or in the experimental stage of development.

It has been known for many years that human beings who recovered from certain of the infectious diseases developed immune substances in their bodies as a result of having recovered, which thereafter generally protected them against a second attack of the disease. As an illustration, the patient who recovers from an attack of diphtheria produces diptheria antitoxin in his body, which if developed rapidly enough, results in neutralization of the circulating toxin generated by the organisms at the site of the focal infection in the nose and throat. Following the discovery by Von Behring and Kitasato[1] in 1890 that diphtheria antitoxin could be obtained by injecting laboratory animals with diphtheria toxin, attempts were made to produce antitoxin in large animals in sufficient quantities to produce a supply for treating human beings who had diphtheria. Diphtheria antitoxin was first used in treating diphtheria by Von Behring[2] in 1894, and the method was so successful that in a few years it came into general use. The results obtained were very striking, and physicians finally had at their disposal a specific therapeutic agent for treating this dreaded disease. The use of diphtheria antitoxin spread rapidly, and soon it was employed throughout the entire civilized world.

The phenomenal success which attended the introduction of diphtheria antitoxin stimulated investigators to make studies on other diseases, hoping that antitoxin or antiserums could be developed for therapeutic purposes for all communicable diseases, thereby making the treatment of them a relatively simple procedure. However, after attempts to develop antisera against most of the common infectious diseases to which man is heir, laboratory workers were much disappointed to discover that antisera could be developed for only a small number of diseases. In some instances, as in diphtheria, the bacteria causing the disease secreted a soluble toxin, against which antitoxin could be readily developed. In other instances, the antisera were developed following the injection of dead or living bacteria, with the result that the active constituents of the antisera were antibacterial rather than antitoxic in nature. At the present time the most important conditions in which serum is of value either for therapeusis or prophylaxis are diphtheria, scarlet fever, meningococcic meningitis, pneumococcic pneumonia, bacillary dysentery, tetanus, and snake bites. I shall discuss each of these products separately, with a consideration of the indications, mode and amount of injections, and after-effects of each.

Diphtheria. Diphtheria antitoxin has been employed more extensively than any other serum known to medicine. The standardization of antitoxin is now on a very sound basis, and there is no reason why potent diphtheria antitoxin should not be used. It is known that in all diseases in which serum therapy is employed, the value of the product from a clinical point of view depends upon the administration of the product in the early stages of the disease. It has been shown many times that diphtheria antitoxin is most effective on the first day of illness, and the effectiveness decreases proportionately with each day of delay. Diphtheria antitoxin should be administered immediately to every patient who is suspected of having diphtheria. For many years injections of 5,000 to 10,000 units of antitoxin were administered, but it has been found that this quantity is inadequate. One large dose of antitoxin administered in the early stages of the illness is far superior to small divided doses. Consequently, antitoxin for therapeutic purposes is now distributed only in 20,000 unit packages by the Illinois Department of Public Health. It is our feeling that if the patient needs antitoxin at all, he needs at least

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20,000 units. The intramuscular route of injection is the method of choice for most cases, but in very severe cases the intravenous as well as the intramuscular route should be employed. However, before an intravenous injection is given, one should ascertain whether or not the patient is sensitive to horse serum protein. Serum injected intramuscularly is absorbed slowly, and several hours elapse before it reaches the general circulation in sufficient quantity to be of value. A combination of the two routes in severe cases is preferred, the intravenous injection taking care of the immediate needs of the patient, whereas an additional amount of serum is gradually absorbed into the blood stream from the intramuscular depot over a period of several hours. Mild cases of diphtheria should receive at least 20,000 units of antitoxin, while severe and malignant cases should receive from 40,000 to 100,000 units.

When diphtheria antitoxin was first discovered, it was employed for prophylactic purposes on a very wide scale following exposure to the disease. However, since the development of diphtheria toxoid for active immunization, the use of antitoxin as a prophylactic has decreased to a marked extent. In short, it is the responsibility of the family physician to see that all children in his practice are immunized with diphtheria toxoid early in life, thereby eliminating the necessity of injections of prophylactic doses of antitoxin following exposure to a case of diphtheria. In the State of Illinois diphtheria immunization has been employed on a wide scale, and the medical profession in general is to be commended for its efforts in this direction. However, many thousands of children are still unprotected, and every effort should be made by physicians and parents to see that these children are protected against diphtheria. This applies especially to children between the ages of nine months and six years. The one-thousand-unit prophylactic dose of diphtheria antitoxin should be employed only in persons who have come into close contact with a diphtheria patient. Younger brothers and sisters and classmates who have had close contact are included in this group for the most part. Unless there is sufficient reason to believe that close contact has actually taken place, it is best not to take the chance of senitizing a child to horse serum with a prophylactic injection of antitoxin. Inasmuch as most adults are naturally immune to diphtheria, the administration of the prophylactic dose of antitoxin is unnecessary. It should always be borne in mind that the serum is rapidly eliminated from the body, and the protection conferred by the injection lasts for only a period of two or three weeks, therefore active immunization with toxoid should follow in about four weeks.

Scarlet Fever. The discovery in 1923 by Doctors George and Gladys Dick[3] that scarlet fever was essentially a toxemia from hemolytic streptococci localized in the nose and throat, led to the development of steptococcus scarletinae antitoxin for treating cases of this disease. This product is employed by physicians on a much wider scale than is generally realized, particularly for the most severe cases. Following an intramuscular injection varying from 6,000 to 12,000 units, (the dose varies considerably in preparations of different manufacturers) there is a drop in temperature, disappearance of the rash and a general improvement in the toxic condition of the patient. However, the general mildness of scarlet fever as we see it at the present time, with a low fatality rate, coupled with delayed serum sickness in a certain percentage of the cases have been factors which have mitigated against the use of scarlet fever antitoxin on a scale comparable to that in which diphtheria antitoxin is employed. Nevertheless, there is no doubt as to its value in severe toxic cases of scarlet fever, and it has been definitely shown by several investigators that the fatality rate can be reduced following its use. However, it has been of little benefit in treating the complications of scarlet fever.

The use of streptococcus scarletinae antitoxin as a prophylactic measure is not very widely employed by physicians at the present time, and is not recommended by the State Department of Public Health. Only 10% of children exposed to scarlet fever come down with the disease, and it is not justifiable to incur the chance of serum sickness when the possibility of contracting scarlet fever is so small. The short time required to carry out a Dick test makes it possible to determine which persons are susceptible to scarlet fever, following which only young children in the same family, and classmates should receive prophylactic injections.

The use of human convalescents' serum in treating scarlet fever is not a new procedure by

any means; it was used in 1912 in Germany by Reiss and Jungmann. Within recent years this procedure has gradually assumed greater popularity, and it has been shown by Hoyne, Levinson and Thalhimer[4] to be of definite value in severe cases. However, the limited supply of human convalescents' serum for treating scarlet fever renders it unlikely that this product can be employed on a wide scale, therefore making it necessary to continue the preparation of scarlet fever antitoxin for commercial use.

Meningococcic Meningitis. This disease has been treated by serum since 1913, when an antiserum was developed by injecting living meningococci into laboratory animals. The resulting preparation, accordingly, was antibacterial rather than antitoxic in nature. Inasmuch as there are four different types of meningococci, all types are injected and a polyvalent serum is produced. Variations in the types of the meningococci have occurred in some outbreaks of the disease, against which standard polyvalent serum is not effective. However, the discovery within recent years by Ferry[5] and his collaborators that the meningococcus elaborates a toxin, has led to the development of meningococcus antitoxin. Administration of this product by the intravenous route, when diluted with saline or glucose solution, has resulted in a marked decrease in the fatality rate in the hands of Hoyne[6] and Tucker.[7] The fact that meningitis is a systemic infection rather than a primary infection of the central nervous system has led to the preference for the intravenous, rather than the intraspinous route of injection.

Pneumococcus Pneumonia. The discovery of the soluble specific substance in pneumococci by Avery and Heidelberger[8] in 1924 established a basis upon which an antiserum against the pneumococcus was first developed. This is an instance of an antiserum being developed against a bacterial product. As in the preparation of most other sera, horses are used for the preparation of antipneumococcus serum in large quantities. For many years, only four types of pneumococci were recognizable, the first three of which could be definitely separated from the others, and the fourth type provided a waste basket into which all other unclassified types of pneumococci were thrown. Studies for the past fifteen years at the Rockefeller Institute have shown that an antiserum against the type I pneumococcus can be developed which has been followed by a fair degree of success in the treatment of type I pneumococcus pneumonia. Within recent years, type II pneumococcus pneumonia has also been treated successfully with a specific antiserum. However, type III pneumonia has never responded favorably to serum therapy. Felton[9] has refined and concentrated the active constituents of antipneumococcus serum, and this product is known as Felton's Refined Pneumococcus Antibody Solution. By employing this product by the intravenous route, Felton has been able to reduce the fatality rate in type I and II pneumococcus pneumonia about 50%.

Monovalent pneumococcus antisera as well as polyvalent antisera are now obtainable on the market. The development of the Neufeldt method of typing of pneumococci has made available a rapid method for determining the type of pneumococcus which is present in many cases of pneumococcus pneumonia. With this procedure, it is best to administer type specific antiserum at once, a procedure which has resulted in a marked reduction in the fatality rate of pneumococcus pneumonia. Unfortunately, pneumococcus antiserum is not employed on a scale commensurate with its value, and for this reason we recommend the use of this product on a wider scale. It may be of interest to know that within the past ten days the Legislature of the State of New York has appropriated $400,000 for the purpose of making pneumococcus antiserum available free of charge to physicians throughout the state for treating their cases of pneumococcus pneumonia. Unfortunately the Illinois Department of Public Health does not now have sufficient funds at its disposal for providing this product for the physicians of Illinois.

Tetanus. At the present time tetanus antitoxin is used almost entirely as a prophylactic measure. As a matter of fact, the increasing number of automobile accidents, in which wounds are contaminated with street dirt and soil, renders the administration of a prophylactic injection of tetanus antitoxin mandatory on the part of the physician. The dose administered is 1500 units, generally by the intramuscular route. The value of this product was conclusively proven during the world war, at which time all wounded men in the allied armies were given prophylactic injections of

tetanus antitoxin. War wounds inflicted by bullets and ragged propectiles were contaminated with soil in the majority of instances, and the losses from tetanus during the early days of the war were alarming. The fact that tetanus spores may remain viable in old scars and wounds for many months led to an order from the Chief of the Army Medical Staff that all men receiving operations for war injuries several months later were to receive a prophylactic injection of tetanus antitoxin before the operation was carried out. In the case of infections which persist, injections should be repeated every eight or ten days.

When tetanus has already developed, the use of tetanus antitoxin as a therapeutic measure is limited because the tetanus toxin has already united with the nerve tissue and is not reached by the antitoxin. Injections by the intraspinal route are preferred by some physicians following the withdrawal of a slightly greater amount of spinal fluid. However, intramuscular and intravenous injections should also be made, and from 60,000 to 100,000 in all should be given. The whole procedure should be repeated daily if indicated. In general, the treatment of tetanus is quite unsatisfactory, and half of the cases terminate fatally in spite of the administration of antitoxin.

Anti-Dysentery Serum. Since the work of Shiga on bacillary dysentery in 1895, antitoxic serums for the treatment of this disease have assumed increasing importance. Bacillary dysentery, as is true in other diseases of the gastrointestinal tract such as typhoid fever, has been markedly reduced during the past generation along with the development of pure drinking water and the establishment of sanitary sewage disposal facilities. However, cases of the disease come to our attention rather frequently, particularly in eleemosynary institutions. A polyvalent antiserum for treating dysentery is available, which is very effective. The general prostration and acute toxemia disappear rapidly following its use, and the local intestinal involvment is greatly diminished.

Antivenins. In the field of immunology one of the early discoveries was that specific antisera could be developed against the poisonous snake venoms. At the present time, a polyvalent serum is available in this country which has been used effectively for the treatment of persons following rattle snake, water moccasin and copperhead bites.

Human Convalescents' Serum. Within recent years the use of human convalescents' serum has received a great deal of attention, particularly in treating poliomyelitis. There is a controversy as to the merits of this product in treating cases of poliomyelitis at the present time. The Illinois Department of Public Health has employed this product for the past five years with satisfactory results according to the opinion of the Medical Staff. The serum is now made available to physicians free of charge for treating their patients with poliomyelitis, and it is recommended that doses varying from 160 to 200 cc. be employed for persons over 12 years of age, 120 to 160 for persons from 6 to 12 years, and from 80 to 120 for persons under 6. Injection by the intravenous route is advised, although the intramuscular route or a combination of the intravenous and intramuscular routes is of great value. It is not contended that nerve tissue which has already been destroyed will be regenerated following the administration of serum. Clinical observation in pre-paralytic and early paralyzed cases have resulted in a rapid return of the temperature to normal, disappearance of the toxic condition and cessation of progress of early paralysis. It is our feeling that this product should be used in large amounts in contrast to the small quantities which were employed in New York in 1931. Inasmuch as this is human serum, untoward reactions are negligible and physicians need not fear serum sickness of the type which follows the use of horse serum products. It has been impossible to employ serum in alternate cases in this state, therefore a carefully controlled study is unavailable at this time. However, the good results obtained following the use of this preparation in our hands has strengthened our feeling that the use of this product should be continued until a more effective therapeutic agent is made available to the medical profession for treating poliomyelitis.

Other Convalescents' Sera. Human convalescents' sera have been used in the treatment of chickenpox, measles and mumps with a reasonable degree of success, although not yet on a large scale.

Desensitization. With the increased employment of serums for therapy and prophylaxis, the possibilities of serum sensitization should be con-

sidered, inasmuch as most serums are produced in horses. Accordingly, every physician who is about to administer serum should first carry out an intradermal skin test with 0.1 cc. of the serum diluted 1-10 in physiological saline. If the patient is sensitive to horse serum protein, a large wheal will appear at the site of the injection ten to thirty minutes later. In such cases, desensitization is best carried out by injecting gradually increasing doses of the serum by the subcutaneous route. The recommended procedure is to make an injection every thirty minutes, beginning with a dose of 0.5 cc. and doubling the dose at each subsequent injection. This procedure should be continued until the entire amount of a full therapeutic dose has been administered, following which additional intramuscular and intravenous injections may be made without danger. It is encouraging to note that serum reactions are becoming less frequent since refinement and concentration procedures have been applied to commercial serum products. Physicians should be certain that a syringe containing 1 cc. of adrenalin chloride is at hand when serum injections are being made, in order to combat any signs of immediate serum sickness.

Serum Reactions. Very rarely, an immediate anaphylactic reaction occurs in persons who are sensitive to serum products, or who have a history of previous asthmatic attacks. Park has observed such reactions in about one in each thousand persons who received diphtheria antitoxin. The symptoms are prostration, rapid and feeble pulse, nausea and a sensation of suffocation. Artificial respiration and injections of adrenalin chloride generally bring about complete recovery. Persons with a history of asthma should not receive serum unless absolutely necessary, and then only with extreme caution.

In our experience, delayed serum sickness has occurred in as high as 50% of persons to whom an animal serum preparation has been administered. The usual symptoms are elevation in temperature, prostration, joint pains and an urticarial eruption, which appear from one to two weeks after injection. Previous desensitization does not prevent the development of delayed serum sickness. Injections of 0.5 cc. to 1.0 cc. of adrenalin chloride once or twice daily should be employed, and calomine lotion and a sodium bicarbonate bath will relieve the irritation from the urticaria. This type of serum sickness is rarely fatal. Serum sickness has not yet been observed by us following administration of human convalescents' serum in several hundred cases of poliomyelitis.

Summary

1. Administration of serum for therapeutic purposes in most communicable diseases is of greatest value when the diagnoses is made early, and the serum is given promptly. The value of serum therapy decreases proportionately with each day of delay.

2. A history should be obtained of previous serum administration and asthmatic attacks. If any doubt exists, an intracutaneous test should be made to determine presence or absence of sensitization. If the patient is hypersensitive, desensitization with fractional subcutaneous doses of serum at 30 minute intervals should be carried out.

3. Intramuscular injections are preferred in prophylaxis.

4. The intravenous route is preferable for administering serum to persons who are extremely ill, and a simultaneous intramuscular injection should also be given.

5. The intravenous route is preferable for administering human convalescents' serum in scarlet fever and poliomyelitis.

6. Serums should always be warmed to body temperature before injection.

7. All injections of serum should be made very slowly.

8. Prophylactic serum injections for temporary protection against diphtheria and scarlet fever should be given only to small children who have had close contact with the patient.

9. Physicians should stimulate prophylactic inoculations, particularly against diphtheria with the use of diphtheria toxoid, thereby eliminating the necessity for prophylactic injections of diphtheria antitoxin.

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DISCUSSION

Dr. George L. Drennan, Jacksonville: It may be beyond the resources of the modern epidemiologist and family physician to prevent the mortalities from all of the diseases referred to by Dr. Tucker. But much has been done and still more will be done. We have traveled far from the days when our progenitors argued as to whether diseases were caused by mechanistic or vitalistic actions, or were the result of fermentation or spontaneous generation, miasmic factors, etc., to the conception of today that infection is the result of the metabolic processes of organisms that utilize the living tissue of a host for their growth and survival.

And while it may not be possible to prevent death in every instance when the disease is present, much marring of life may be avoided and much happiness brought about by the application of present day knowledge and accepted procedures for the prevention of these diseases. It is not, however, within the scope of this discussion to dwell on preventive measures except as they apply in prophylaxis and treatment.

Although it may not be possible to stamp out all of these diseases, or to prevent death in those in whom the disease is fully developed, yet within the province of the modern epidemiologist, pediatrician, and family physician lies the early stage of all these, and if we are to treat them intelligently we must be usefully informed about them.

It is fundamental at the onset to appreciate some facts about infection and immunity. Some infection may be defined as the result which is brought about in the host by the metabolic process of an organism or as the derangement in the host, either local or general, that results when organisms have passed through a portal of entry in the host and have gained access to susceptible tissue.

The human host, through long years of exposure, has adapted itself so that the entodermic and ectodermic coverings of the body prevent the ingress of the ordinary bacteria that could attack the vital hidden parts beneath. A break in the host's defense mechanism will provide an entrance through which organisms may come in contact with tissues not prepared to meet the onslaught of the invader. It is important to know the portal through which an organism gains access to the undefended tissue, since diseases have a regular or usual portal of entry. If we know the portal, we usually know the site where the host first complains of symptoms, and we can sometimes guess the genus of the offending organism.

As a result of infection, several conditions may develop, dependent upon the patient's resistance. The offending organisms may multiply to the extent that they enter the blood stream; bacteremia will then develop. The disease may cause such an increase in the white cells of the blood elements that abscesses and pyemia will result. The organisms may shunt their metabolic products into the blood stream to be carried everywhere, resulting in a toxemia, or the bacteria may multiply to such an extent that, with their toxins, a condition of septicemia may be noted.

Although the organisms may gain access to the host or reach a susceptible organ in such numbers as would ordinarily cause a disease, they must have time to multiply in these favorable areas before the alterations that are produced in the host are recognized as disease. An undisturbed incubation period, then, of a relatively shorter or longer time, is an absolute essential in order to enable the organism to produce the disease in the host. It may take a long while to bring about typhoid fever. On the other hand, the organisms that cause scarlet fever may multiply sufficiently to cause the disease within twenty-four to forty-eight hours.

Knowledge of the time of exposure and the ordinary incubation period of these diseases is most important because it is during this period when we can do most for many who have been exposed. It is during the incubation period and the very early stage of the disease that we must do all that we can if we are to show evidences of having progressed from that dark age of medicine when discussions were heard about mechanistic and vitalistic activities, etc. It is at this stage that we can aid the host by conferring an artificial passive immunity to the metabolic process of the invading organism. This necessarily presupposes two things: 1. A careful, painstaking history regarding exposure and, 2, accurate early diagnosis. A third should be emphasized—a thorough working knowledge of the available antitoxins and antisera.

These bacteria, when they have gained entrance into susceptible tissue, multiply rapidly and produce toxins steadily. Every hour and every minute sees the development of millions of bacteria or quantities of toxin which will require thousands of units of antitoxin to neutralize. The tetanus bacillus in the incubation period of a week to twelve or fourteen days produces and transmits to all parts of the body, toxins in such quantities that neutralization is almost impossible, whereas a small dose of 1500 units within twenty-four hours of exposure protects the host against the disease.

Today, if we are to do anything for a patient with poliomyelitis it must be done before paralysis has developed.

It seems almost useless to discuss the use of diphtheria antitoxin; however, one point cannot be overemphasized, namely, the early administration of a single dose sufficient to bring about immediate improvement.

Innumerable articles have been written about the therapeutic results obtained with the use of anti-meningococcus serum and meningococcus antitoxin, and from these it is apparent that the so-called fulminating type of the disease is usually not amenable to any treatment and the patient dies within six to forty-eight hours. In this disease, early diagnosis, keeping in mind that the meningitis is often, in the earliest stage, a small localized process which can only be diagnosed by very careful examination, including spinal puncture; and the prompt administration of antiserum and anti-

toxin may mean the difference between death and recovery.

Scarlet fever in its present day mild form seems to require no specific treatment, but all reports agree that the early administration of convalescent serum or antitoxin will prevent, in many instances, the dire complications which are so frequently more serious than the disease itself.

In treating any of these diseases it must be remembered that when the conflagration has started and is spreading, we are dealing with a serious threat to life. Many of these need never occur, but when they do occur how much more reasonable it is to prevent the development of fully developed disease by careful, accurate early diagnosis and the prompt administration of the specific antitoxins, antisera and convalescent sera. All this is the responsibility of the family physician, pediatrician and epidemiologist.

THE USE OF POOLED HUMAN CONVALESCENT SCARLET FEVER SERUM IN SURGICAL STREPTOCOCCIC INFECTIONS[1]

SAMUEL L. GOLDBERG, M. D.

CHICAGO

The treatment of fulminating, overwhelming streptococcus infections with convalescent human serum dates back at least ten years, when its use was reported by Boente,[1] in Germany. Killian,[2] also a German, reported on its use in 1928. In 1935, Thalheimer and Levinson[3] reported their experiences with the use of serum in a group of diverse streptococcus infections. Recently there have been several case reports by Baum,[4] Holmblad and Jacobsen[5] and McWhorter.[6]

It is very difficult to evaluate the results of serum therapy accurately for several reasons. Most of the physicians who have been supplied with serum by the Samuel Deutsch Serum Center have been very cooperative in reporting the results of its use, but it is impossible to get all the details from them. Obviously no control group of comparable patients can be obtained. Most of these patients have received other types of therapy, including surgical drainage, parenteral fluids, local heat, blood transfusions, other sera or vaccines, etc., and it is a matter of conjecture which agent plays the most important role. For these reasons we do not know what the outcome would be in this particular group of patients without the use of serum. Gregory and Schwartzman,[7] however, report a mortality of 75% in a group of peripheral surgical infections during the middle years of life; and Shepar, Spence, and Mac Neal[8] report thirteen cases, treated with antistreptococcus horse serum with five deaths, a mortality of about 38%. They report several severe reactions.

In the group of cases reported by Thalhimer and Levinson, there were 26 cases of "sepsis" and septic complications, six of streptococcic cellulitis or phlegmon, three streptococcic arthritis, three streptococcic peritonitis. Of this group of 38 that we can class as surgical sepsis, there were eleven deaths, eight from "sepsis," two from cellulitis, and one from peritonitis, a mortality of about 30%.

Since 1935, we have collected from the Serum Center records and from my private practice a group of 28 additional cases of clinical surgical "sepsis," including lymphangeitis, cellulitis, lymphadenitis, gangrene, phlebitis and post-operative infections. These patients ranged in age from five years up to 65, five being below fifteen years of age, and the remainder adults. In the group there are four fatalities, 24 recoveries, a mortality of only 15%. Each of these patients was critically ill at the time serum was administered, and in most cases the attending physician considered the prognosis very grave, and asked for serum as a measure of last resort. Each of my own patients was practically moribund at some stage of their illness. In this group most of the patients were given larger doses of serum than had been previously employed.

The four fatal cases deserve a few words. One was a diabetic gangrene of the arm in a woman of forty, who received 80 cc. of serum intravenously without any appreciable general or local effect. The second was a lymphangeitis and sepsis following a cut thumb. Here only 40 cc. of serum was given intramuscularly to an adult of forty-one; in these two cases the trial of serum therapy was undoubtedly inadequate. The third was a subacute inguinal adenitis, which we believe now to have been a Meleney type of anerobic streptococcic infection of the leg. Three doses of 100 cc. each of serum were given on the 24th, 28th and 31st day of the illness, with slight, if any, effect on the process. This woman died of erosion of the femoral artery and hemorrhage on the 37th day of the

From the Samuel Deutsch Serum Center and the Surgical division of Michael Reese Hospital, Chicago, Illinois.

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illness. The fourth fatality occurred in a youngster of ten, who had an abscess of the leg with inguinal adenitis and sepsis. Multiple transfusions were given for sixteen days without effect. On that day 40 cc. of serum was given intravenously with little effect. The child died the next day.

The 24 cases that recovered obviously cannot be discussed in detail at this time. I shall abstract two of the cases that I followed personally. The clinical pictures of course cannot be portrayed on the slides of the temperature and pulse charts that I shall show. The changes in the mental reactions of the patients, the changes in attitude, appetite, pulse quality, toxicity, etc., are the most marked results of serum therapy, but unfortunately we have no units in which to measure these.

Case 1. Mrs. C, aged 40 years, weight 251, was bitten by a mosquito on the left ankle on September 24. I saw her at 8:00 P. M., September 29. Forty-eight hours previously she scratched the bite. The afternoon of the 29th the lesion broke and drained several drops of serum. Examination revealed no fever, no change in pulse, but an area of redness one inch in diameter surrounding the lesion. The usual heat, elevation and rest were advised. By midnight her temperature was 102°, and the redness involved an area about three inches in diameter. At 6:00 A. M. the next morning, she had a chill followed by a temperature rise to 103°, and she was hospitalized. Before 4:00 P. M. she had several chills. At that time her temperature was 104.8°, her pulse rate 120. The entire leg from knee to ankle was indurated, red, angry, tender, and very hot. There was left inguinal and lower abdominal tenderness. She was very toxic, delirious, flushed, and dry. Her leucocyte count was 4,000. General physical examination by a medical consultant was otherwise negative. At 4:00 P. M. she was given 100 cc. of pooled human convalescent scarlet fever serum intravenously. Within one hour the picture had changed completely. The patient was sitting up in bed asking for food and water, talking with both nurses and doctors. At 8:00 P. M. her temperature was 103°, pulse 100. The leg looked less red, but was still quite edematous. The abdomen and groin were not tender. By noon the next day her temperature was 101°, and the leucocyte count had reached 12,000. The leg redness and edema subsided somewhat. She was given another 100 cc. of serum intravenously that evening, with a further drop in temperature that night. The rise in temperature the next day is attributed to ultra-violet light erythema, which treatment was given on that day in an attempt to influence the local condition. The fourth day her temperature was normal; the leg was practically well, except for the blistering due to ultra-violet light; she left the hospital on the twelfth day.

Watching the development of this fulminating infection associated with a leucopenia, in an obese woman of forty years, and watching the rapid subsidence of all signs and symptoms within one hour after administration of serum, one could not help but feel that the administration of serum was the specific effective therapeutic measure in this case.

The results of serum administration are not always as rapid, as striking, nor as permanent. This is illustrated in the following case:

Case 2. Mr. M. P., aged 55 years, stuck a splinter into the dorsum of his right thumb on January 20, 1936. He removed it with a needle. On the 23rd he noticed a small area of redness; on the 24th this increased in size, and there were a few lymphangitic streaks reaching his wrist. He was adequately treated at home by his doctor, but continued to get worse and was hospitalized on the 27th. On admission his temperature was 102.8° rectally, his pulse 118. There was marked swelling and redness of the entire thumb extending to the wrist, with a central area about one inch in diameter that was blue and fluctuant, with two minute openings draining a few drops of pus. Lymphangitic streaks extended to the axilla, where several tender nodes were palpated. His leucocyte count was 21,000. A small incision was made into the blue area and a lake of pus was evacuated. No further manipulating was done, and huge hot dressings were applied over the entire arm, which was immobilized and elevated.

The next morning the streaks were less noticeable, but that afternoon there was a chill and a rise in temperature to 104.8°, with a drop that evening to 101.6°. Following a chill the next afternoon his temperature reached 106°; he became delirious, irrational, cyanotic, and lapsed into semi-coma. The arm was the seat of a rapidly spreading brawny cellulitis, which reached above the elbow. Eighty cc. of serum was given intravenously with definite but slight improvement which lasted for 12 hours, followed again by semi-coma and delirium. In the next 24 hours he was given two 100 cc. doses of serum intravenously, as well as 300 cc. of blood from a convalescent scarlet fever donor.

Following the second dose of serum he improved remarkably. The cyanosis disappeared; his temperature was lower and he had several lucid intervals. The improvement continued the next day, the 31st, but in spite of a lowered temperature, on February 1 he became toxic and delirious. Another transfusion of 300 cc. of convalescent blood was given, with little effect. On February 2 his condition was still worse, and he was given 100 cc. of serum with almost immediate marked improvement in his general condition. That night a lake of pus near his elbow was drained through a small stab wound made without anesthesia. By morning of the 3rd, his general condition was again very bad, so bad that the subpectoral space, which was definitely edematous and possibly fluctuant, was incised without the need of an anesthetic. A few cubic centimeters of thin serous fluid was obtained.

The cellulitis by this time, had spread up the neck and around the back beyond the midline and down to the sacrum.

We feel that drainage of the subpectoral space may have helped the patient, though his condition remained critical. The serum was continued daily, 100 cc. at a dose for four days, during which time he gradually improved. It seemed that the improvement was more marked in the 12 hours after administration of the serum. The local lesion faded gradually, and his convalescence, though delayed by a thrombophlebitis at the site of injection of glucose into an ankle vein, was uneventful.

Discussion—The dose of serum given a patient for hemolytic streptococcus infections is dictated by several factors, age, weight, severity of symptoms, and repeated doses are given as dictated by the course of the disease. The fear of possible reactions to the serum has for some time limited the dosage to relatively small amounts and to the intramuscular route, as this group of patients are so sick that the slightest reactions might prove fatal. After considerable experience with its use we have learned not to fear reactions and have increased the dose and repeated the administration of serum as necessary. We have used the intravenous route exclusively. No instance of any untoward reaction, or of the development of any sensitivity that would preclude repeated injections has been observed. The patient in Case 2 received a total of 680 cc. of serum, in 7 doses. Each dose was followed by clinical improvement, and when that improvement had gone, there was no hesitation about repeating the serum.

The theory upon which the use of serum is based is the inactivation or neutralization of streptococcus toxins in the circulation. The modus operandi is not known. In the first case the toxicity was quickly reduced to a large extent, while in the second case the reduction was less marked and less permanent, necessitating repeated dosages. We do not know the exact relationship between the reduction of toxicity and the primary lesion. Indirectly there is probably some connection, inasmuch as an individual overwhelmed by an infection probably cannot set up barriers to that injection as well as a more normal individual. This is illustrated by the leucocyte count in the first case, which rose markedly when the overwhelming infection was partially stemmed by the serum.

Attention should be called to the fact that this form of therapy is not as specific as would be desired. The pools of serum are made from blood taken from thirty to forty individuals recovering from a streptococcic infection contracted during the same season. In this way it is hoped to secure a rather uniformly potent polyvalent streptococcus serum, effective against those strains predominant in the community at the given time. Unfortunately we have no dependable or adequate laboratory test to determine potency of serum against a given strain of the organism. It is for this reason that the pooled serum in large dosage is employed. Undoubtedly, cases do occur in which the infecting organism is a strain not covered in the serum used, and it is possible that these are the cases showing no clinical response to serum therapy. Such instances are rare, and for the majority of infections, there are more or less specific antibodies which exert the beneficial effect that is observed. This may possibly explain the difference in response seen in the different cases; that is abrupt improvement when specific potency is high, and gradual improvement when it is lower. This is also the grounds for our belief that immunotransfusions, although helpful, are less effective because there is greater chance that the individual specimen of blood will have little direct specificity for the infection being treated. They should be used in conjunction with pooled serum.

Special emphasis must be placed on one fact. The use of serum should in no way effect the use of sound surgical principles of treatment, and of sound surgical judgment. Localized collections of pus should be drained, and incisions should not be made into areas in which the infection is not localized. Serum therapy is advocated only as an adjunct to these and to other supportive measures, and not as a substitute for them.

Summary

1. Twenty-eight cases of septic surgical streptococcus infections treated with pooled human convalescent scarlet fever serum are reported, with four fatalities, a mortality of 15% for the group.

2. This mortality compares favorably with previous reports of similar infections treated without the use of serum. While there are factors that have been discussed that make it difficult to evaluate these figures accurately, we feel that serum therapy is of definite value in this group of cases.

3. Serum therapy is not advocated as a substitute for sound surgical measures in this group of cases, but for use as an adjunct to these meas-

ures and other supportive therapy. When properly used, and in adequate dosage, we believe it to be a very valuable therapeutic agent.

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310 S. Michigan Avenue.

THE QUANTITATIVE NATURE OF IMMUNITY

PAUL S. RHOADS, M. D.

EVANSTON, ILL.

Few of us can qualify as experts in one phase of clinical medicine. None of us are experts in all phases. In the biologic treatment of infectious processes we must rely upon the recommendations of immunologists and pharmacologists. As a matter of practical experience most of us, on perfectly legitimate grounds, stick to the directions contained in packaged biologicals without further thought or investigation of the rationale or technic of treatment. We do the usual thing in the usual way, and feel that our responsibility to the patient is discharged.

Many of us have either observed or participated in the disillusioning consequences of such an attitude. The attitude of which I speak loses sight of the fact that immunity is always a relative affair.

In any infection the outcome depends upon a variety of extremely variable factors, such as the atrium of infection, the degree of trauma accompanying the entrance of bacteria into the body, the virulence of the microbe involved, the numbers of organisms entering the body, the presence of other pathogenic microbes, etc. In the same way the degree of resistance of the host is equally variable, depending upon his previous experience with the particular disease agents involved, and many other factors.

If we bear these things in mind we shall recognize the *quantitative* nature of immunity, and make every effort to fit every immunological procedure to the immediate problem of the patient rather than to fit the patient to an inflexible procedure.

To be specific, let me mention a few personal experiences. During the eight years I was in charge of the Nurses' Infirmary at Cook County Hospital, there were two cases of tetanus, both fatal. The first was in a nurse who received a slight laceration above one eye when she was thrown against the mirror in the front of an automobile. She was taken at once to a surgeon at the Cook County Hospital. The laceration was treated with mercurochrome, and a dressing applied. Because of the minor character of the injury, she did not report to the Infirmary until two days later. At that time, although the wound had not entirely healed, no suspicion of tetanus was aroused. Next day when she returned for a dressing she complained of slight headache, and a small tender gland was felt in front of the ear. A prophylactic dose of tetanus antitoxin (1500 units) was given and she was hospitalized for hot dressings to the lesion. The following day she had typical tetanus. In spite of large doses of tetanus antitoxin administered intraspinously and intravenously she died one day later.

The other patient was a nurse who received a slight puncture wound in her knee while at a bathing beach one evening. She thought the injury was from a wire which lay beneath the surface of the water. She reported to the Infirmary next day. The usual prophylactic dose of tetanus antitoxin (1500 units) was given, and hot boric packs advised. The lesion did not heal as promptly as was expected. Two days later the girl was hospitalized. Seven days after the injury another prophylactic dose was given. Two days later she developed typical tetanic convulsions, and in spite of intensive serum therapy, within 24 hours was dead.

In the two cases just cited, in addition, possibly, to inefficient local debridement of the wounds, there was an insufficient appreciation of the quantitative character of immunity against tetanus. Not enough prophylactic antitoxin was given. In the first case the importance of the delay in administering the antitoxin was not sufficiently realized.

A package of antitoxin bearing the same label and same lot number as that used in the second case was tested for potency in accordance with

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the standard procedure outlined by the laboratories of the U. S. Public Health Service. It was found to be as potent as claimed. Similar tests were made of three other well known brands. All were as potent as claimed. Apparently the failures to protect were not because of impotent serum.

Another experience was with diphtheria. During the first 17 months I cared for the Cook County Hospital nurses there were 29 cases of diphtheria among them. Of these, 14 were among nurses who had presumably been immunized against diphtheria by three doses of toxin-antitoxin under the supervision of my predecessor. Although this was the standard procedure at that time, toxin-antitoxin apparently afforded no protection whatever, because the incidence of diphtheria was higher in the supposedly protected group than in the non-immunized.[1]

Another experience was with scarlet fever. Some years ago a technician was hired for laboratory work in the Cook County Contagious Disease Hospital. Two days after starting her work she was Dick tested by the resident physician and found to be susceptible to scarlet fever. She was given 7.5 cc. of convalescent scarlet fever serum, the dose then being used at that hospital for prophylaxis. A Dick test made the day she received the convalescent serum, was, when observed the next day, positive. The following day she came down with typical scarlet fever. It had not been appreciated that 7.5 cc. of convalescent serum was inadequate to afford satisfactory passive protection against scarlet fever.

Such happenings as these—and many more could be cited from my own experience—probably occur because we are too prone to accept the experiences of others unquestioningly, and to forget that immunity is a strictly quantitative phenomenon.

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In the giving of prophylactic antitoxin it is well to remember that when local conditions are favorable to the growth of tetanus bacilli the toxin is produced with amazing speed. From the first hour on it increases in geometric proportion. After a lapse of one hour in experimentally infected animals, 24 times as much antitoxin is required to preserve the animal as is required when the antitoxin is given at once.[6]

In the giving of antitoxin, this factor of time elapsed from the recept of injury and the degree of contamination of the wound should be the determining factor in deciding upon the dose. In the light of accumulating data, it seems likely

that the present routine dose of 1500 units for prophylaxis will give way to larger amounts. The risk of giving 2 to 4 cc. of serum instead of the usual 1 cc. to 2 cc., which now in most cases contains the prophylactic dose, is negligible. Since my unfortunate experiences, I give 3,000 units routinely except for the most trivial wounds, and sometimes more. Prophylactic doses of 1,500, 3,000, and 5,000 units are commercially available. One commercial house has a bovine serum which, although it is somewhat more expensive, is safer for use in individuals known to be sensitive to horse serum. In badly contaminated wounds which are slow in healing it is well to repeat the antitoxin every few days until healing is nearly complete. When operation at the site of a previously badly infected wound is undertaken an extra prophylactic dose should be given at the time of operation.

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In the average case of tetanus in a person of 12 years or older, Kolmer[8] advocates a total dosage of 120,000 to 200,000 units. He advises 10,000 units intraspinuously and 20,000 units intravenously the first and second days; 10,000 units by each route on the third day; and 10,000 units intramuscularly the fourth day. A great many authorities advise much larger doses particularly by the intravenous route. The treatment should be continued until the issue is definitely settled.

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After many months of experimentation by the Dicks a skin test was decided upon of such strength that 90 to 95% of convalescent scarlet fever patients were found immune, and 5 to 10% still susceptible.[11] If this test is made by injecting exactly 0.1 cc. of properly diluted scarlet fever toxin into the skin of the volar surface of the forearm from a syringe and needle which have been boiled in distilled water and observed at 20-24 hours, it is a reliable test for immunity.

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the standard procedure outlined by the laboratories of the U. S. Public Health Service. It was found to be as potent as claimed. Similar tests were made of three other well known brands. All were as potent as claimed. Apparently the failures to protect were not because of impotent serum.

Another experience was with diphtheria. During the first 17 months I cared for the Cook County Hospital nurses there were 29 cases of diphtheria among them. Of these, 14 were among nurses who had presumably been immunized against diphtheria by three doses of toxin-antitoxin under the supervision of my predecessor. Although this was the standard procedure at that time, toxin-antitoxin apparently afforded no protection whatever, because the incidence of diphtheria was higher in the supposedly protected group than in the non-immunized.[1]

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scarlet fever. During the same period there were 15 cases among a group of 449 who were either not tested or immunized or were incompletely immunized. Since this report several thousand more have been tested. One case of scarlet fever has occurred in a Dick negative nurse. So far as I know this is the only instance in which a person found negative by the Scarlet Fever Committee has contracted scarlet fever. Rappaport[13] recently reported that no case of scarlet fever had occurred in a Dick negative nurse since the routine use of Dick tests was adopted at the Evanston Hospital in 1924. The test in my experience is the most reliable of the skin tests for susceptibility now available. However, the quantitative factors must be carefully observed or mistakes will result.

The present method for active immunization is the result of years of careful studies on many thousands of children and young adults. The aim of the Dicks was to perfect a method which would immunize as large a proportion of Dick positive individuals as would an attack of the disease itself. The present dosage of 500, 2000, 25,000, and 80,000 skin test doses given at weekly intervals will accomplish this. Consistently, retests performed two weeks after the last immunizing dose show that 95 to 100% have been successfully immunized. In my experience, no person immunized to the point of a negative Dick test by this method has contracted scarlet fever.

In active immunization the necessity for bearing in mind the quantitative character of the process warrants re-emphasis. It is known that very much less than the present total of immunizing units (115,500 skin test doses) will render a great many susceptible individuals Dick negative. However, the smaller total dosage will immunize a smaller percentage, and the immunity produced will be much more transient than when the regular dosage is used.

Examples were afforded by a commercial preparation of recinoleated scarlet fever antigen, which was on the market a few years ago, and Veldee's so-called scarlet fever toxoid. The ricinoleated product was supposed to immunize with one to three doses, and to do so with less reaction than occurred with the regular scarlet fever toxin. Tests made by the Scarlet Fever Committee showed it to contain approximately 2000 skin test doses per cc. This was too large for an initial dose and, of course, too small for the total dose. The reactions were severe and the immunity—if the doses were carried to the point of a negative Dick test at all—was not lasting. Many cases of scarlet fever occurred after its use. It was not understood that the mere attainment of a negative Dick test by active immunization does not imply lasting immunity. By this method many persons attained a partial immunity as demonstrated by a negative Dick test two weeks after the last dose. But the immunity was very transient because of the small amount of antigen used. The quantitative nature of the immunity mechanism was not understood.

Because of the success of toxoid in active immunization against diphtheria, it was hoped that a successful scarlet fever toxoid could be developed. Some years ago the Dicks, in close cooperation with Ramon, made several batches of formalized toxin and tried them in active immunization. The conclusion reached at that time was that, with scarlet fever toxin, as toxicity disappear antigenic value and antotixin combining power are proportionately reduced. After detoxification with formalin or alum, the ability to stimulate antibody production is proportional to the amount of free toxin remaining in the filtrate. The detoxified fraction appears to contain no antigenic properties.[14]

Many other workers, chiefly French, tried detoxified filtrates of scarlet fever streptococci in active immunization with no consistently successful results. In the past few years Veldee of the U. S. Public Health Service has made several reports on his preparation of so-called scarlet fever "toxoid"—the acetone insoluble portion of the toxin containing broth filtrate redissolved in broth and treated with 0.4% solution of formaldehyde, and stored at 37 C for about 60 days.

The Dicks obtained a supply of Veldee's preparation and used it in active immunization in the dosage he advised. The majority of persons receiving the material did not become immune to scarlet fever. The results obtained were practically identical with those in control groups who received the same amount of unmodified toxin as remained in the Veldee preparation, but not the detoxified portion present in his "toxoid." In other words, the presence of large amounts of formaline modified toxin in Veldee's preparation added nothing to its antigenic value.

A discussion of all phases of active immunization against scarlet fever is not in order here. However, a word as to duration of immunity belongs in a discussion of the quantitative features

of immunity. When asked about this question one can honestly reply only that the immunization can, in most instances, be counted upon to last a period of years. Beyond this one cannot safely go in discussing any active immunization. It is well for us to bear in mind that immunity is a relative affair. There are all degrees of susceptibility and immunity. People vary a great deal in their ability to manufacture and retain immune bodies. I have seen a patient with a typical average case of scarlet fever, including desquamation, leave the Contagious Hospital with a positive Dick test, indicating that he was still susceptible, and return to the hospital with a second attack within a month. With the second, his skin test became negative.

The experience of the Scarlet Fever Committee at Mooseheart indicates that about 90% of persons immunized with the full course of injections advised by the Dicks are still immune when tested a year later. On retests during subsequent years, the large majority of these remain immune. Most of those who become again Dick positive after immunization do so within the first year. When these are re-immunized with the same total dosage originally used, they usually retain their immunity as well as the others. Not all workers will obtain results comparable to this. It is important to state that all of these children received the full course of immunizing doses and sixth doses, if their retests two weeks after completing the doses were even slightly positive with two skin test doses. Immunization with less than the full course of toxin will, of course, not produce such lasting immunity. No cases of scarlet fever in originally Dick negative or immunized children have occurred since work was begun at Mooseheart in 1926.

In discussing scarlet fever antitoxin I shall not go into the relative merits of treatment with antitoxin and without. A large enough literature has accumulated on this subject for one to make up his own mind. The Dicks have attempted to anticipate difficulties with the quantitative element here by insisting that the serum be marketed in packages marked prophylactic or therapeutic doses. The present unit of potency used in the laboratories of the United States Public Health Service is 50 times the amount necessary to neutralize one skin test dose of toxin. On the package the dosage appears in these units, and also in original neutralizing units as specified by the Dicks. This leads to confusion. If we remember that one therapeutic dose (300,000 original neutralizing units) is sufficient for the average case of scarlet fever and two for the more toxic cases, there need be little difficulty in deciding on the correct dosage. Only in extremely severe cases will more than two therapeutic doses be required. In my hands, the prophylactic dose of 100,000 neutralizing units has been uniformly successful in preventing scarlet fever, when administered before the onset of the rash. It, of course, confers only a passive immunity which cannot be counted upon to last more than two weeks.

Convalescent serum, if used in large enough amounts, is a very useful prophylactic and therapeutic agent. In persons highly sensitive to horse serum it is, naturally, the agent of choice. One case in which it failed to protect against scarlet fever was described. There are a great many others. One reason is that, until a year or so ago, it was not generally appreciated that the doses in general use were entirely too small. Doctor Gasul and I titrated twelve lots of pooled scarlet fever convalescent serum, kindly furnished to us by the Michael Reese Hospital Serum Center.[15] We found an average titer of about 500 neutralizing units per cc., the highest titer being 1,000 units per cc. This is one-thirtieth the strength of the weakest scarlet fever antitoxin allowed on the market, and one-two hundredth the strength of the best commercial preparation on the market. To gain additional data we gave to each of 20 subjects shown by Dick tests to be susceptible to scarlet fever 10 or 20 cc. of convalescent serum. These persons were Dick tested again the same day or the following day, and Dick tests were repeated daily for several days. Only three became immediately Dick negative. Two of these had very faint original tests. A large proportion, approximately half, had not become Dick negative when the tests were discontinued several days later.

Eleven susceptible children were given a prophylactic dose of scarlet fever antitoxin the same days on which their Dick tests were read as positive. The Dick tests were repeated at the same time the antitoxin was given. Next day *all* had become Dick negative.

To be depended upon for prophylaxis, at least 40 to 50 cc. of pooled convalescent serum should be given. Of course, the antitoxin given with this dose is much less than the amount given in

the ordinary prophylactic dose of commercial antitoxin.

In active treatment of scarlet fever, much larger amounts of convalescent serum need to be given to obtain results comparable to those obtained with antitoxin.

Diphtheria. The quantitative element in diphtheria immunity needs equal emphasis. The Schick test is a reliable indicator of immunity against diphtheria, if properly performed and properly interpreted. Unmodified toxin is used, so diluted that 0.1 cc. contains 1/3 to 1/50 of a minimum lethal dose for a 250 gm. guinea pig. It is best to observe the reaction at 48 and 72 hours. If observed sooner than at 48 hours, some negative tests will be interpreted as positive. If read later than 72 hours, some positive tests will already have faded. A control test with boiled Schick test material should always be made. In practice, however, it is probably safest to disregard a positive control test, or pseudo-reaction, when it occurs with a positive *original* test. It will be found that in many instances these reactions to heated toxin will have become negative after a series of immunizing doses. If in the *retest* following an adequate immunizing course the Schick test control results in an area of erythema as wide, as bright, and as indurated as the test with the unheated toxin, it is probably safe to call the test negative. Far too many mistakes are made in interpreting the Schick reaction as pseudo-negative. Another cause of error, less easily controlled, is the presence on the market of occasional batches of impotent Schick test material.[12] In 1929 two Cook County Hospital nurses of a group of 165, who had had negative original Schick tests, came down with diphtheria. In the course of an investigation to find the cause of these mistakes, I tested nine different preparations of Schick test material simultaneously on several susceptible persons. Two of the commercial preparations gave negative tests in all persons tested, while all the others uniformly resulted in positive tests. It happened that one of these impotent preparations was by the same manufacturer whose product had been used in testing the nurses who contracted diphtheria. At present, the Scarlet Fever Committee, which immunizes the Cook County nurses against both scarlet fever and diphtheria, is using for Schick tests only toxin made by themselves and diluted the day used. Probably the already diluted and buffered Schick test material made now by some biological concerns is potent in most instances.

Shaughnessy[16] of the Illinois State Health Department recently cited work which raises the question as to whether the present Schick test material, even if it meets United States government requirements, is strong enough. In years past a negative Schick test was thought to indicate that the person in question had enough circulating diphtheria antitoxin to enable him to withstand the invasion of all diphtheria bacilli. Schick's original assertion was that this "critical threshold" of antitoxin in the blood was 1/30 unit per cc. Later he modified this statement by saying that if an individual had less than 1/500 unit of antitoxin per cc. in his blood the test was always positive, if more than 1/200 unit per cc. it was nearly always negative. Recent studies of Jensen, Parish, and Wright indicate that this level is approximately correct but they question whether this amount of antitoxin is enough to protect all persons against diphtheria. The same workers showed that with Schick test toxin ten times the strength of that usually used a negative result ensued only if the blood contained 1/30 unit or more of antitoxin per cc.

Even more disturbing is the demonstration by other English investigators at Leeds that when persons become infected with a particularly virulent type of diphtheria bacillus called by them the "gravis" type, an even higher titer of circulating antitoxin is required to protect them. Several persons with negative Schick tests whose blood contained as much as ⅕ unit per cc. contracted the disease, though none died.

No one can fairly question the enormous value of the Schick test in differentiating those susceptible and those immune to the onslaughts of the average strain of diphtheria bacilli. But it appears that a more critical evaluation of Schick tests from the quantitative point of view is needed.

Since its introduction by von Behring in 1912, active immunization against diphtheria has come into almost universal use in this country. Until 1925 toxin-antitoxin mixtures were used almost exclusively. In these the mixtures were so diluted that 1 cc. contained 3 L+ doses of toxin to which antitoxin had been added. Some contained enough antitoxin to almost but not quite completely neutralize the toxin; other mixtures were neutral; and others, slightly over neutralized.

While no claims of 100% effectiveness were made, toxin-antitoxin cut down the incidence of diphtheria very materially in those immunized. Park[17] reported that among 57,000 originally Schick negative children there were five cases of diphtheria; and among 33,000 originally Schick positive children who received one to three doses of toxin-antitoxin, there were nine cases of diphtheria—a total of 14 cases of diphtheria among 90,000 originally Schick negative or immunized subjects. On the other hand, among 90,000 untreated control subjects there were 56 cases of diphtheria. About four times as many cases of diphtheria developed among the unprotected children.

Following some fatal accidents with frozen preparations of toxin-antitoxin, the old dosage of 3 L+ doses of toxin per cc. was supplanted by 0.1 L+ doses of toxin per cc. in the commercial toxin-antitoxin mixtures. I do not have figures on large groups immunized since that time. My personal experience would indicate that for one reason or another, toxin-antitoxin has probably been less effective since 1924.[1] (As previously stated, there were 29 cases of diphtheria among the Cook County Hospital nurses during a period of 17 months in 1926 and 1927. Fourteen of these were nurses who had had three doses of toxin-antitoxin, as recommended by the state board of health at that time. Since the control group who had not had toxin-antitoxin was more than twice as large as the group of those who had and since the number of cases of diphtheria in it was practically the same, it is evident that the percentage of cases in those supposedly immunized was greater than in those not immunized.) To get additional data, Schick tests were performed on the entire nursing staff. To my surprise the percentage of positive Schick tests among those who had had three doses of toxin-antitoxin was 67.2, while that in the untreated group was 58.3%. It became apparent that toxin-antitoxin, as it was then being administered, was not an effective procedure.

Thirteen lots of toxin-antitoxin prepared by four different biological houses were obtained, and the tests for potency specified by the laboratory of the United States Public Health Service were repeated upon them. No lot was found to be of the "ideal toxicity" described in the government tests, but ten were within the "permissable variations" specified. Three lots, none of which were outdated, were definitely less potent than the regulations required. The use of impotent material may have been the cause of the poor results obtained, but in the light of subsequent experience it seems more likely that three doses of toxin-antitoxin in the dosage now used is insufficient for most adults.

Beginning in 1927 five doses of toxin-antitoxin, every lot of which was tested by the Scarlet Fever Committee, were used instead of three. One dose of 0.5 cc. and four doses of 1.0 cc. each were given at weekly intervals. Of 141 susceptible nurses receiving this course of treatment up to July 1, 1930, 64.4% of those retested were found immune. Three of the group receiving five doses of toxin-antitoxin contracted diphtheria.

After a few months it was decided to use diphtheria toxoid. A total quantity of at least 2.5 cc., divided among three or more doses, was used. If a nurse had a large and bright control test indicating, in addition to a high susceptibility to diphtheria, sensitiveness to the proteins of the toxin, she was given five doses at weekly intervals, as follows: 0.1 cc., 0.25 cc., 0.5 cc., 1.0 cc., and 1.5 cc. If the Schick test was only moderately large and the control test negative, larger initial doses were used. Four hundred twenty-four nurses received this course of treatment. Of those retested, 8.14% were immune. One of this group subsequently had a mild attack of diphtheria. In the same period there were 16 cases of diphtheria among 357 nurses who had been neither tested nor immunized by us. Since this study only toxoid has been used, and to my knowledge there have been no cases of diphtheria in those immunized to the point of a negative Schick test.

I think there can be no question that diphtheria toxoid is superior to toxin-antitoxin as an immunizing agent. The experiences cited by Healy[18] indicate, however, that no American commercial preparation is as effective as the toxoid obtained directly from Ramon in France. In private practice I always give at least twice the dosage recommended in the commercial packages, that is, four doses of 0.5, 1.0, 1.5, and 1.5 cc. at weekly intervals. A smaller total dose will render the majority of susceptible children Schick negative. From previous experience I have confidence in a lasting immunity being produced only if larger doses than are now in general use are given.

In a recent study in Toronto,[19] McKinnon and Ross compared the relative effectiveness of im-

munizing courses of 1 cc., 2 cc., and 3 cc., each of toxoid in protecting children during a diphtheria epidemic. The case incidence and death rate were estimated from a large group of non-treated controls. In the group who received only one dose of toxoid there were 24 cases instead of the 34 cases estimated, and 3 deaths. In the group receiving two doses there were 52 cases instead of the 200 which had been estimated, and 2 deaths. In the latter group about 90% were protected, and subsequent Schick test studies indicated that this percentage of protection was maintained for at least four or five years. Here again it is well to reiterate that immunity is always a relative affair and not absolute. The statement appearing in good textbooks that active immunity against diphtheria will last six years (this statement, quoting Park and Zingher, appears in Kolmer's text) is open to serious question. It is safer to tell parents that after a negative Schick test is attained through toxoid administration immunity can *usually* be counted on to last several years. Retests should be made every two years.

I have not used alum toxoid, so cannot speak with authority about it. It has not been in general use long enough for an adequate evaluation of its effectiveness. There have been some sloughs at the site of injection.

Fraser[20] of Toronto, on good experimental grounds, holds that one dose of alum precipitated toxoid is definitely inferior to three doses of unmodified toxoid in producing immunity against diphtheria. He used a single batch of formolized diphtheria toxin, dividing it into two portions, one of which was prepared as the alum precipitate. One group of children received three doses of unmodified toxoid. The others received an equivalent amount of toxoid as the alum precipitate in a single dose. Ten weeks after the last dose in each group, the anti-toxin in the blood of the two groups was found to be over 0.01 unit per cc. in 62% receiving the alum precipitate and in 91% receiving unmodified toxoid. One year later similar tritrations were made, and only 19% of the alum precipitate group still had 0.01 unit per cc., while the percentage in the other group was still 91%.

I do not propose to discuss the active treatment of diphtheria beyond saying that the present tendency is toward larger and larger doses of antitoxin. Large amounts of serum will produce slightly more late serum sickness than small amounts, but the danger of anaphylactic shock from the initial injections is probably no greater. In my own cases I give approximately twice the dosage recommended in the texts of Kolmer and Schamberg.

Dr. Sauer will speak to you about whooping cough. There is no question that the vaccine prepared and administered according to his directions gives a far higher degree of protection than the vaccines formerly used. As I understand it, in addition to the use of freshly isolated pertussis strains in the smooth, hemolytic phase, he insists that the total dosage be, at least, 80 billion killed bacilli. This is twenty times the dose formerly used—another recognition of the importance of the quantitative factor.

In closing, let me reiterate that there is a quantitative element in immunity which cannot be neglected. Care in selection of the biological to be used and care properly to fit it to the patient in question are of the utmost importance.

636 Church Street.

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TYPE-SPECIFIC ANTI-PNEUMOCOCCIC SERUM THERAPY

W. D. SUTLIFF, M. D.,

CHICAGO

During a period of 20 years since Cole first saw the beneficial results of type specific serum in lobar pneumonia, the treatment has been tested wherever the serum was abailable in hospitals in New York, in Boston, in England, in Scotland, and most recently in Cincinnati. It has also been used for patients in their homes in the state of Massachusetts. Two years ago I compared the data on antipneumococcus serum with the data that has been used to justify the use of other forms of therapy in pneumonia and other diseases.[1] It appears that no therapy that is offered to physicians today has been so thoroughly tested as antipneumococcus serum therapy.

The results of some of these studies of type specific therapy for Type I pneumococcus lobar pneumonia and Type II pneumococcus lobar pneumonia can be shown with the aid of tables and figures.

The first three illustrations are concerned with Type I lobar pneumonia. They include only cases diagnosed within the first 72 to 120 hours. In the first 2 lines of table I the fatality rates of patients treated in New York at Bellevue Hospital, and in various city hospitals in England and in Scotland by the British Therapeutic Trials Committee are compared with an approximately equal number of controls chosen by the system of assigning numbers on admission. Every second patient in these series was given serum therapy. The fatality rates were reduced in each series; by as much as 50% in one. In the Boston City Hospital, where the class of patient is similar to these other hospitals, every patient in

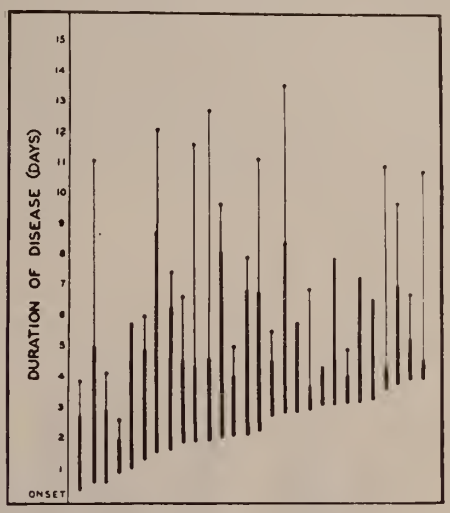


Fig. 1. Type 1 cases. Duration of disease in 28 cases that received no serum.

certain wards was treated, and a similar low death rate of 12% was obtained. For comparison it is generally thought that the death rate of cases seen early in their disease who do not receive specific therapy, is about 25%. In this

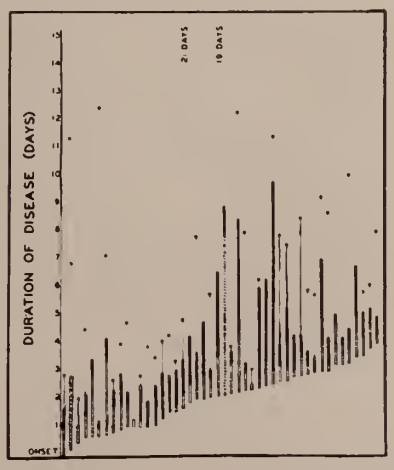


Fig. 2. Type 1 cases. Duration of disease in 46 serum treated cases. In Figures 1 and 2 each bar represents one patient. The distance of the bar from the base line represents the duration of the disease before entry; the hatched portion the time from admission to the time of serum administration; the solid portion the time to the first permanent drop in temperature below 101° F; and the light line the time until all symptoms and fever disappeared.

connection it is of interest that in Massachusetts where patients were treated in their homes, the death rate was the same as in hospitals. A series of Type I patients diagnosed early in their

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disease showed a death rate of about 10% among those that received serum and a death date of 25% among those who did not receive serum.

The first figure indicates the duration of the disease in 28 patients. The time in days is shown at the left. The space from the baseline to the beginning of the heavy line indicates the duration of symptoms in each case before admission to the hospital. The length of the heavy line indicates the time from admission to the hospital until a

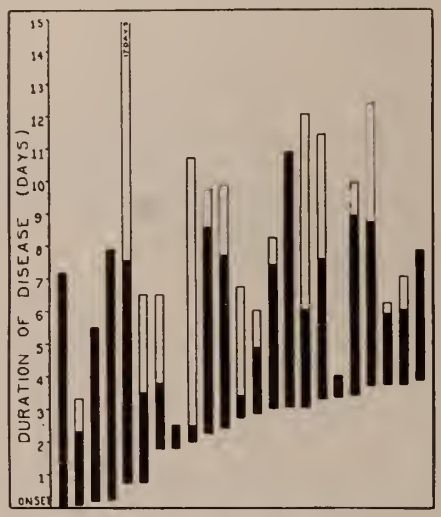


Fig. 3. Type II cases. Duration of disease in 23 cases that received no serum.

decisive change took place in the course of the disease, and the length of the light line is the time during which mild fever persisted.

The second figure shows the duration of the disease in 46 patients who recovered after receiving serum therapy.

A smaller number of cases of Type II pneumococcus lobar pneumonia has been similarly treated. Data like that for Type I pneumonia is available where enough serum has been administered early enough in the disease. Table 2 and figure 3 (23 cases), and figure 4 (33 cases) show the death rates and duration of the disease in patients that received serum compared with patients that did not receive serum.

A summary of the therapeutic tests conducted to date with antopneumocoicic serum shows that all physicians who have diagnosed and treated patients early and have given what is known to be an adequate dosage, have had strikingly favorable results. The results compare with those attained by the same means, namely alternate case therapeutic experiments with diphtheria antitoxin. (Table 3.)

It is now generally agreed that type specific therapy of Type I lobar pneumonia patients befor the end of the 4th day of the disease will reduce the death rate by one-half, and will shorten the course of the disease in a striking manner in cases that recover. Seventy to 80% of these are well within 36 hours after receiving serum. The best results reported to date are those of Blankenhorn in Cincinnati who treated 50 patients without a single death.

Type II pneumonia is a more serious disease; more serum is required, and good results have been obtained by fewer observers, but where the fundamental requirements of adequate dosage and early treatment have been well observed the results have been as good as in Type I pneumonia.

Type specific serum has developed and become established, but this development has not stopped. Investigation continues, and two new probabilities of extensions of its usefulness have appeared, namely its use for other types of pneumococci than Types I and II. Table 4 indicates the

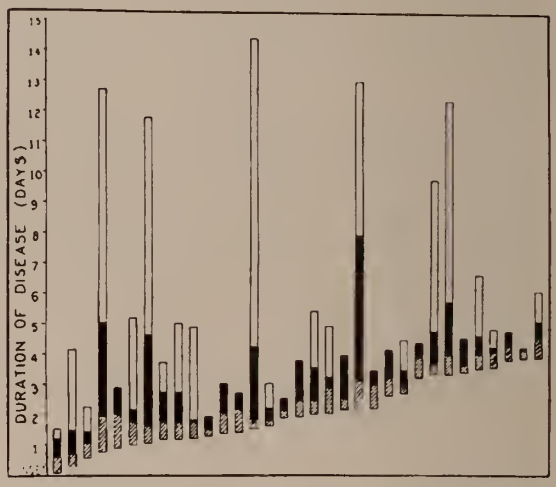


Fig. 4. Type II cases. Duration of disease in 33 serum treated cases. In Figures 3 and 4 each bar represents one patient. The distance of the bar from the base line represents the duration of the disease before entry; the hatched portion the time from admission to the time of serum administration; the solid portion the time to the first permanent drop in temperature below 101° F.; and the light portion the time until all symptoms and fever disappeared.

mortality rate of pneumonia due to the rarer pneumococcus strains when type specific serum is used for therapy. Types V, VII, VIII, and XIV. Type XIV is found, you will note, predominantly in children. Another even more important development in this field is the probability that serum obtained from rabbits will prove cheaper and more effective than horse serum. The rabbit

TABLE 1. TYPE I, EARLY CASES, MAXIMUM DURATION 72 TO 120 HOURS

		Treated		*Controls*	
		Per Cent Died	Number of Cases	Per Cent Died	Number of Cases
Bellevue	72 Hrs.	11.7	103	26.8	97
Britain	120 Hrs.	11.2	107	16.1	105
Boston City	96 Hrs.	12.0	58		
Fatality Rate Generally Reported 25.0 Per Cent					

TABLE 2. TYPE II, EARLY CASES, MAXIMUM DURATION 72 TO 120 HOURS

		Treated		*Controls*	
		Per Cent Died	Number of Cases	Per Cent Died	Number of Cases
Bellevue	72 Hrs.	14.3	21	65.0	20
Britain	120 Hrs.	12.5	56	22.2	54
Boston City	96 Hrs.	17.0	41		
Fatality Rate Generally Reported 40.0 Per Cent					

develops more potent antibodies, is cheaper to use, and lends itself better to the production of serum for a large number of different strains of pneumococci. If such serum proves as practical as the first reports indicate, nearly all our problems are already solved.

The questions that have been raised about serum administration have usually had nothing to do with its effectiveness. They are of a more practical nature. The first of these is, "What is the technique of its safe administration?" In regard to the technique of administration I shall refer you to a handy little book by Lord and Heffron.[2] This book is an outgrowth of the experience of 20 years with type specific serum therapy of pneumonia in hospitals. It discusses the subject thoroughly from all angles and gives a workable description of the technique that was found useful when applied to pneumonia cases wherever found in homes and hospitals throughout a populous state. I can endorse the subject matter, and recommend it for its readability. You will find that early diagnosis is of prime importance. Lobar pneumonia is certainly much easier to diagnose in the first 2 to 4 days of the disease than ony of the other diseases where such early diagnosis is important. The recognition of the organism that is causing the pneumonia is a second important fact. Typing of the pneumococcus from the sputum by means of the Neufeld reaction is rapid, accurate, and requires no apparatus other than a slide and microscope. The dosage of serum and the precautions taken to avoid reactions are well presented in the book of Lord and Heffron, and they can be found in the wrapper that comes with each vial of serum. Diagnosis, before the end of the 4th day, typing of the pneumococcus from the sputum, and the administration of an adequate amount of antipneumococcic antibodies have been made feasible and safe.

TABLE 3. MORTALITY RATE OF DIPHTHERIA CASES TREATED WITH ANTITOXIN COMPARED WITH CASES TREATED WITHOUT ANTITOXIN

	With Antitoxin		*Wihout Antitoxin*	
	Percent Died	Number of Cases	Percent Died	Number of Cases
Where treated				
New York	15.0	56,425	34.9	27,210
Paris	24.5	448	60.0	520
Berlin	16.7	317	43.1	260
Copenhagen	3.5	239	12.5	245

TABLE 4. EARLY TREATED CASES WITHOUT CONTROLS

Type	Percent Died	Number of Cases
Type	Percent Died	Number of Cases
V	9.6	93
VII	6.3	47
VIII	8.8	47
XIV	7.1	28 (children)

A second question that has often been asked is "How can this measure, which has heretofore been confined to places where money is available to finance its use, be made available to others?" Probably the most serious misconception about the use of antipneumococcic serum is the impression that seems quite widespread that its cost precludes its use. Serum is now commercially available for Types I, II, V, VII and VIII at a price which is not out of reach of many persons in the community, namely from $25 to $100 per patient. When one considers the price of medical care for many other diseases of the same or equal seriousness and frequency—tuberculosis, appendicitis, and the value which the patient receives in return for expensive treatment, those who can afford specific therapy for lobar pneumonia are well advised to do so. The problem of its distribution to those who cannot afford to pay may be solved as it is being solved for medical care of other kinds. Hospitals should include provision for serum therapy in their budgets as is done in Chicago, Evanston, Milwaukee and Cincinnati. Another procedure that may work out well is that of Massachusetts, where the state itself manufactures serum and supplies its own physicians and those in other New England States. The state has also aided in the training of physicians and laboratory diagnosticians. Similar projects are being undertaken in New York State and in New York City where adequate funds have been appropriated for pneumonia control. The Illinois Medical Society may profitably interest itself in

promoting the development of pneumonia serum therapy in this state. The activities of the members of this Society in their own communities could do much to induce laboratories to open typing service stations and to induce hospitals to furnish serum for those who cannot pay. An official suggestion from the Society to the State and City Health Departments and the Legislature would insure the organization of adequate pneumonia control.

1155 E. 57th Street.

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HUMAN CONVALESCENT SERUM AND ITS APPLICATION TO ACUTE INFECTIOUS DISEASES

SIDNEY O. LEVINSON, M. D.,
ELIZABETH PENRUDDOCKE, B. A.,
AND ALBERT M. WOLF, M. D.,
CHICAGO

The realization of the necessity for a serum center to make human convalescent serum available to any community is becoming so well recognized that within the last few years six or eight such organizations have been established, and several others are being planned. The success of such an organization requires intimate cooperation by the established health organizations, organized medical groups and the practicing physicians.

The Samuel Deutsch Serum Center has been fortunate in having received wholehearted cooperation from the Chicago Board of Health, the Illinois State Department of Health and the physicians in the community. The extent to which the serum center has been able to make human convalescent serum available to our community must be attributed to the active support of these groups. The Samuel Deutsch Serum Center is particularly indebted to Dr. Herman N. Bundesen, President of the Chicago Board of Health, Dr. Frank J. Jirka, Director of the State Department of Health, for their vital interest and help, and to Dr. Julius H. Hess for his unfailing advice and guidance since the serum center has been established.

We constantly strive for two goals in the preparation of human convalescent serum: first, to secure maximum potency, and second, to insure an innocuous product.

There are several measures that we must follow to achieve the first purpose. We must have every assurance that the individual who is to act as a donor of blood for serum has had an attack of the specific infection for which the serum is prepared. Individuals having doubtful cases should not be used. The blood must be drawn within six months following an attack of scarlet fever or measles, because after this period of time the serum loses a measure of its potency. This is not true in individuals recovered from infantile paralysis. Their serum apparently remains potent for many years after an attack of the disease. If at all possible, every pool of serum should contain a minimum of thirty individual specimens. During the processing of the serum, it must at no time be permitted to become unduly warm, and after preparation it must be stored in a refrigerator at 2 degrees Centigrade.

We have had experience in the past with serum prepared from doubtful cases, serum prepared from individuals who had their illness more than six months prior to the drawing of blood, and serum inadvertently exposed to warm temperatures for several hours. In all cases, there is very distinct evidence that such serums had a markedly reduced efficacy.

Certain measures must be followed in order to prepare a product which may be given with a feeling of security. All glassware used in the drawing of blood and processing of serum must be absolutely chemically clean and sterile. Every specimen of blood must have both Wassermann and Kahn tests, and a careful sterility test before it may be used for pooling. The pool of serum, to which a preservative is added as a precautionary measure, should be put through a Berkefeld Filter, and the final pool must again be tested for sterility before it is released.

Obviously, these fundamental but rigorous requirements, developed during the last six years, are reflected in the clinical results and in the complete safety of administration of human convalescent serum.

The expectancy and nature of reactions from

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From the Samuel Deutsch Serum Center, Michael Reese Hospital, Chicago.

the use of human serum should first be discussed. When properly prepared, following the principles outlined in the first part of this paper, severe reactions, either immediate or delayed, need not be expected; for in a vast experience in Chicago such reactions have not been encountered. An occasional severe reaction has been traced to glassware improperly prepared or to serum improperly handled. We have encountered very infrequently (in 0.3 to 0.4% of cases) mild urticarial reactions. This is being studied, and at the present time all evidence seems to indicate that this mild urticaria is due to a passive sensitization. Because it is so mild in character, and because this passive sensitization is short in duration, it requires very little consideration in the administration of human serum.

The limited space of time allotted to this paper curtails any detailed discussion of the use of serum and the entire scope of serum prophylaxis and therapy. We will not have time to touch upon our experience with the use of serum in chickenpox, whopping cough, mumps, dysentery and pneumonia. Only the results secured with the use of serum in scarlet fever, measles and poliomyelitis can be discussed.

Scarlet Fever. Scarlet fever convalescent serum has now been used for prophylaxis and therapy in a large number of cases. Ninety-seven and seven-tenths per cent. of home contacts, who had no previous scarlet fever and were intimately exposed, did not develop the disease after receiving a prophylactic injection of serum. The immunity conferred by this injection is only temporary, and although from some reports it may last one or two months, we have found that at times it may not persist more than two weeks. For this reason we recommend repeating the inoculation at the end of two weeks in a susceptible individual if he remains constantly exposed to the infection for longer than this period.

The results secured with the use of serum in the treatment of scarlet fever are now well established. When administered early and in adequate dosage, it produces a rather prompt amelioration of the acute symptoms of the disease. This is particularly true when the serum is administered intravenously. Over 90% of patients will have a drop in temperature, decrease in toxicity, fading of the rash and improvement of the throat symptoms within 12 to 48 hours. The rapidity of the improvement depends not only on the duration of illness, but also upon the amount of serum administered and the route employed.

Our studies have also brought out the very interesting fact that the incidence of complications in those individuals who received serum is much less than in untreated cases. It is not surprising, therefore, that the mortality in the serum treated group is decidedly lower than the mortality observed in untreated patients.

Convalescent scarlet fever serum has been used rather extensively late in the disease in scarlet fever patients suffering from severe complications. It has also been employed in many instances of fulminating infections produced by the hemolytic streptococcus. In these infections, very massive doses, administered intravenously and repeated at frequent intervals, have been found necessary. The results secured, as indicated by the reports made to the Serum Center, show that the serum is of marked beneficial effect in most instances, although these results are not as striking nor as prompt as is seen in the treatment of uncomplicated scarlet fever.

Measles. Measles convalescent serum has been limited to prophylactic administration. It has been found that when a proper dose is given within four days after exposure, most of the cases are completely protected and no disease develops. However, if the serum is administered from the fourth to the eighth day of the incubation period, in most instances a very mild atypical measles will appear. This type of disease is called sero-attenuated measles. Our results have shown a combined protection (either complete or partial) in 94% of contacts immunized with serum.

If complete protection is conferred upon the individual with the administration of convalescent serum, this protection is only transient because it is a passive immunity. However, if an attenuated form of the disease develops, it is an active immunity and may be expected to be permanent. In institutions, where all contagious disease is avoided, immediate administration is practiced to obtain complete protection; whereas, in the home, where an active immunity is more desirable, delayed administration is recommended.

Poliomyelitis. The results secured in the Chicago area last year with intensive therapy confirm our previous satisfactory experience. Fifty-three patients were treated in the preparalytic stage during 1936. A number developed a mild grade

of paralysis. Only one developed a more serious degree of involvement. This patient was really beginning to show evidence of paralysis when serum was given her, the interne on the case having noted definite weakness in his examination, but even in this patient recovery has been quite marked, and the amount of residual involvement will not be sufficient to keep this person from resuming an active life before the year is up. The right middle and lower trapezius are the only muscles which are now considered seriously affected. The other 52 patients have made a practically complete recovery, either immediate or within a few months of the onset of the illness.

The mortality rate secured in bulbar cases is also quite significant. The average mortality in this fulminating form of the disease is reported to be around 70%. The serum treated group, which now numbers 76 patients, has an average mortality of only 42%, the rate being only 32% in those who were treated within 24 hours of the first appearance of paralysis.

These unquestionably favorable results are attributed to our method of treatment. Early diagnosis, before any paralysis is manifest, must be stressed. Massive amounts of serum are employed without delay, the dose varying between 100 cc. and 200 cc. The cases are closely observed, and the same massive doses of serum are repeated within 12 to 24 hours unless and until there is a cessation of the active infection as determined by temperature drop, decrease in prostration and arrest of the disease progress. All serum is given intravenously—the intraspinal route apparently has no advantages and in bulbar cases may even be hazardous. It is to be understood, of course, that other measures must be observed, complete rest, proper muscle care, etc.

Although these results as well as other reports are very favorable, nevertheless, convalescent serum treatment in poliomyelitis has remained the subject of much discussion. There are three schools of thought at the present time. One group is firmly convinced that the use of serum is a very beneficial measure and to withhold serum from any case that requires it is an injustice to the patient.

A second group, comprising a majority of medical opinion, adopts a stand which may best be expressed as follows: Clinically, patients treated with convalescent serum seem to have a very definite response to such therapy. The favorable reports cannot be ignored. Since there is no other therapeutic measure, and since convalescent serum is harmless, the patient should be given serum for the possible or probable beneficial effect it may exert upon the course of the disease. However, the lack of any carefully controlled study, which shows a distinct advantage in the favor of serum treated cases, prevents this group of physicians from accepting this measure as one of undisputed value.

A third group adopts a more extreme and more critical attitude. This group is completely unimpressed by favorable observations, because of the knowledge that 50 to 80% of individuals who develop symptoms of early poliomyelitis will recover without paralysis. This group maintains its attitude, despite recent reports of less than 2% paralysis appearing in patients treated with massive doses of serum in an early stage of the disease before paralysis was manifest. They refuse to accept this very marked and significant difference of incidence in paralysis of less than 2% in treated patients, against 20% or more incidence of paralysis in untreated, well studied patients, as reported in the American literature up to the present time. A critical attitude of this kind is healthy if it is not arbitrary. However, a certain proportion of this group bitterly opposes and condemns serum therapy. They consider the matter a closed subject and such therapeutic attempts hopeless.

This view that treatment is hopeless inevitably leads to late diagnosis. There is the natural reaction that since early diagnosis offers no advantage, then there is no need for any watchfulness to recognize the disease in its early stages. An apathy toward early diagnosis will defeat efforts of studying the nature of this illness in man, or of controlling the spread of infection. It is for these reasons, quite apart from the question of serum therapy, that this negativistic attitude should be deplored.

The controversy on the value of convalescent serum therapy cannot be definitely settled until a well controlled, impartially observed alternate case study in a large series of cases is made. The statement made before this Society last year may be repeated: "The obligation rests with those who deny the value of convalescent serum (in poliomyelitis) to perform a study of this kind to validate their contention. We who believe in the value of convalescent serum therapy cannot as-

sume the responsibility of denying such therapy to any patient."

CONCLUSIONS

1. The success of a serum center depends on wholehearted and intimate cooperation with established health organizations and medical groups.

2. Rigorous care and attention must be exercised in the preparation of convalescent serum to insure a final potent and safe product.

3. Scarlet fever convalescent serum has been effective both in prophylaxis and therapy.

4. Measles convalescent serum has proven to be a valuable prophylactic agent.

5. The treatment of poliomyelitis with convalescent serum has resulted in less than 2% paralysis in over 200 consecutive cases. Important features of the treatment are:

a. Early diagnosis and early serum administration.

b. Massive doses by the intravenous route.

c. Constant close observation of the patient and repeated administration of serum every twelve hours until the active disease is arrested.

6. Despite adverse opinion on the value of serum therapy in poliomyelitis, studies of this form of therapy should be continued and, if possible, enlarged to include an alternate case control group.

6940 S. Jeffery Ave.

ROENTGEN THERAPY IN INFLAMMATORY AND INFECTIOUS LESIONS

B. C. Cushway, M. D. and R. J. Maier, M. D.

CHICAGO

So much emphasis has been placed upon the use of irradiation in the treatment of malignancy and other neoplasms that many physicians may not be aware that most acute and chronic infections and inflammations respond very favorably to this same form of therapy. The fear of skin reactions as seen in the treatment of malignancy may be partially responsible for its limited use.

Although the almost specific action of roentgen rays upon many types of infection has been known to radiologists for a number of years, the use of this therapeutic agent has been limited to certain localities and only a few of the infections which respond most favorably have been treated. The work and publications of Desjardins, Manges and Hodges have done a great deal to place this type of therapy in infections and inflammations upon a rational and scientific basis. Still, only a small percentage of such lesions that respond so favorably to roentgen rays are so difficult to treat by other methods in common usage receive roentgen therapy. Its wider usage has been prevented by the fear of skin reactions and the physician's unfamiliarity with the biological effects and reactions of irradiation. Many of these biological actions have been known by workers and experimenters with roentgen rays and rays given off by radium since as early as 1905. They discovered these reactions in themselves or their patients ofttimes much to their own sorrow. From these experiences there grew an empirical system or method of therapy.

In order to have a rational method of treatment it is necessary to be able to measure the dosage of the agent used and know the biological reaction to various dosages. In the early years of roentgen therapy no measuring instruments of dosage were available, hence, it has been necessary to wait upon the physicists and manufacturers for the development and perfection of instruments with which to determine the exact dosage delivered by any source of radiation. Next came the determination of the reaction of living tissues to measured doses. This has taken time, a tremendous amount of work and is not yet complete as many of the phases are still in a theoretical form and will not be definitely known until much more progress has been made in the knowledge of electrophysics.

According to Desjardins[1] cells may be classified in the order of their degree of sensitivity as follows:

Lymphoid cells—lymphocytes found in the spleen, lymph nodes, blood, bone marrow, thymus and tonsils.

Polymorphonuclear leukocytes found in the blood or tissues.

Epithelial cells found in certain secretory glands, basal epithelium of the testes and ovary, basal epithelium of the skin and mucous membranes, alveolar epithelium of the lungs, bile ducts and liver and epithelium of tubules of the kidneys.

Endothelial cells of blood vessels, pleura and peritoneum.

Connective tissue cells.

Muscle cells.

Bone cells.

Fat cells.

Nerve cells.

Read before Joint Session of Sections on Medicine, Surgery, Eye, Ear, Nose & Throat, Public Health & Hygiene & Radiology, Illinois State Medical Society, Peoria, May 20, 1937.

The younger and more active the cell the more susceptible it is to the influence of radiation, but the relation of the age of the cell to its relative sensitiveness is less important than the specific vulnerability of the different varieties of cells.

Early in the application of roentgen rays for therapeutic purposes it was felt that the beneficial effects of radiation might be due to a stimulating effect of the radiation, this stimulating action causing an increase in tissue vitality sufficient to successfully combat the pathological process. One reason for the advance of this theory has been that regression of pathological lesions has taken place after exposure to small doses of roentgen rays. This is probably better explained as being due to a high degree of radiosensitivity of the tissue cells involved. Desjardins feels that the theory regarding the stimulating effect of radiation has arisen from the attempt to apply to radiation the so-called Arndt-Schulz law according to which small doses stimulate and large doses depress cellular metabolism. Based on pharmacologic grounds this doctrine has not been generally accepted even by pharmacologists. The attempt to apply this law to the action of roentgen rays is unwarranted because the experimental evidence on which it is based is extremely meager and apparently invalid. Experimental work on glandular tissue such as the salivary and gastric glands, also experiments on the effects of radiation on the secretory activity of the kidney show a very transient increase of secretory activity in response to radiation. The phase of increase in glandular function is of such a short duration and so quickly replaced by a decrease in glandular activity below normal that we may feel that any apparent stimulating effect associated with the application of radiation is but the alteration of a normal to an aberrant function due to irritation. Secondary and indirect stimulation may sometimes be observed as the result of a primary degenerative effect on certain cells.

At the present time we believe that the first biological effect of radiation is irritation. This irritation may lead to a temporary transient phase of increased cellular activity. This is followed almost immediately by depressed functions and cellular destruction. Continued acceleration of metabolism cannot be produced by radiation. Degenerative changes practically always follow except in extremely resistant tissue where no effect whatever may be observed.

While the empirical treatment of infection and inflammation by irradiation has grown along with the treatment of other lesions it has not attained the usage it deserves partially because of the inability to explain the reactions obtained. The most logical explanation of the excellent results and rapid improvement following roentgen therapy in infections and inflammations is given by Desjardins. The body's method of fighting an infection is to rush to the site large numbers of leukocytes which have the power to ingest and digest the invading organisms. The antibodies produced by these cells are entirely endogenous and not exogenous, hence, only those organisms ingested by the cells are effected by them, leaving all other organisms free to grow, reproduce and excrete toxins. No free antibodies are present in the tissues until the leukocytes begin to die and break up as the result of infection, except for small quantities that may be present in the blood and lymph, the result of some previous infection. These, however, are always in small quantities and not sufficient to greatly retard the process of a virulent infection. Only after large numbers of leukocytes have been destroyed does the concentration of antibodies become sufficient to retard the growth, reproduction and excretion of the invading organisms sufficiently that they may be overcome. It is this destruction of leukocytes and liberation of antibodies we seek to cause by irradiation.

Due to the marked susceptibility of leukocytes and particularly lymphocytes as brought out by Warthin[2] degenerative changes are noted as early as 15 minutes following a moderately large exposure to roentgen rays. With a proper regulation of dosage the leukocytes may be the only cells in an area destroyed by irradiation. The rapid destruction of leukocytes by radiation in an infected area frees large quantities of antibodies at the site of infection retarding growth, excretion of toxins and killing invading organisms. The lysins also contained in these cells promote rapid liquefaction and drainage of tissues too badly injured for repair. If treated early, however, such injury does not occur and the tissues quickly return to normal. Only in advanced or long standing cases are incision and drainage necessary and when preceded by irradiation the convalescence should be shortened due to the rapid liquefaction of injured or necrotic tissue.

If we accept Desjardins' theory and we feel that it is the most logical then dosage is of ex-

treme importance. Considerable has been written and there has been some controversy over the proper dosage. Doses varying from 75 r daily up to 350 r repeated in 48 hours have been advocated and good results reported. Inasmuch as the prime object, according to our accepted theory, is to destroy large numbers of leukocytes in the infected area the larger doses, consistent with the limits of safety, should give the most prompt and uniform results. The essayists have found this to be the case except in certain types of infections where the effects of roentgen rays desired are not confined to the destruction of leukocytes.

During the period of experimentation and statistical research practically all kinds of infections and inflammations have been treated with irradiation. The results up to the present time show that certain kinds of infections are particularly susceptible and in some instances, notable furuncles, carbuncles, metastatic parotitis, erysipelas, "Ludwig's" angina and other infections originating in and about the mouth there is almost a specific response. All types of infections and inflammations may be grouped according to their acuteness, response to irradiation, type and dosage giving best results. (Charts 1, 2 and 3.)

The acute infections are the most susceptible and react best to large doses of lightly filtered radiation. The entire dose of 600 r to 700 r is given within 48 hours. The chronic infections are less susceptible and require repeated administration of smaller doses, moderately filtered, given over an extended period of time. The last group of inflammations respond best to highly filtered fractional dosage given over an extended period.

The course and results also follow this grouping. In the acute group, following the first dose a definite reaction in the form of an exacerbation of symptoms usually occurs within from four to eight hours which lasts from six to eight hours. This is followed by rapid amelioration of the symptoms and disappearance of the lesion. This is often so rapid as to eliminate the necessity of the second dose usually given in 48 hours. Where the recovery is not so rapid and a second dose is indicated the exacerbation of symptoms is a rare occurrence, the lesion continues to improve to complete disappearance. Pain, discomfort and swelling are relieved in the order given. The period of convalescence in nearly all cases is markedly shortened, being from two to five days.

In the group of chronic infections the course covers a much longer period. The dosage being much smaller, little or no exacerbation of symptoms occurs and the response is correspondingly slower. This group requires treatment over a period of from four to twelve weeks and complete recovery of some of these lesions cannot be expected under from three to six months. The re-

CHART 1. ACUTE INFECTIONS.

Cellulitis	Highly sensitive to irradiation.
Ludwig's angina	
Furuncles	
Carbuncles	
Metastatic Parotitis	
Erysipelas	Respond best to comparatively large doses.
Acute adenitis	
Lichen planus acute	
Impetigo contagiosa	
Gas gangrene	

CHART 2. CHRONIC INFECTIONS

Chronic adenitis (Tbc., Pyogenic)	Moderately sensitive to irradiation.
Mycoses	
Perionychium	Respond best to fractional doses, moderately filtered.
Chronic parotitis	
Lichen planus chronic	
Lupus	
Acne	

CHART 3. INFLAMMATIONS

Bursitis	Moderately sensitive to irradiation.
Pruritis	
Neuritis (Herpes zoster, Sciatica, Radiculitis, Brachial)	Respond best to fractional highly filtered doses.

CHART 4

Lesion	Improved	Questionable	Not Improved	Total
Neuritis	16	..	3	19
Cellulitis	87	2	2	91
Bursitis	5	..	..	5
Carbuncle	25	..	1	26
Furuncle	13	..	..	13
Erysipelas	6	..	1	7
Parotitis	6	1	2	9
Adenitis	26	1	1	28
Adenitis Tbc.	4	2	1	7
Otitis media	6	3	1	10
Lupus	2	..	..	2
Actinomycosis	..	..	1	1
Tinia Barba	2	..	..	2
Epidermophytosis	18	1	1	20
Perionychium	2	..	..	2
Acne	72	..	..	72
Gas gangrene	4	..	..	4
Pruritis	3	..	..	3
Dermatitis Venenata	4	..	..	4
Acne Rosacea	4	..	..	4
Total cases	..	..	..	329

lief of symptoms as in the acute group may occur early in the course of treatment.

In the last group the course is more rapid. The treatment is usually given within two weeks and a favorable response is usually obtained within a week with complete disappearance of symptoms within from two to four weeks.

The course and results vary somewhat within the various groups as would be expected but time does not allow a detailed description of the course in each lesion. The essayists have treated 329 cases of infection and inflammation in the past two years with type and results given in Chart 4. A detailed report by the essayists on the roentgen therapy of cellulitis may also be found in the Illinois Medical Journal, November, 1936.

In conclusion the essayists wish to urge you to try roentgen rays in those lesions that are not responding rapidly to the usual type of therapy.

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THE CONTROL OF RABIES

Maurice L. Blatt, M. D.,
CHICAGO

The destruction of human life by rabies, motor vehicles, or the criminal's pistol, are all evidences of the uncontrolled advances of various phases of our complex civilization. We perfect the pistol but fail to prevent its being owned by the hold-up man; we perfect the motor vehicle and place a mental, moral or physical weakling on the driver's seat, turning him loose on roads which engineers know are unsafe. We pride ourselves on our ability to build vast cities, the physical evidence of the combined knowledge of every profession and trade; we assemble many persons in these cities and let potentially mad dogs roam among them.

Both ownership of the pistol and sale of ammunition can easily be controlled at the source. A medical examination and licensure of drivers will reduce the road hazard resulting from petit mal, night or color blindness, alcoholic susceptibility and other physical defects. If given the opportunity, engineers will build safe roads and physicians will put safe drivers at the wheel.

Intelligent and forceful medical leadership will eradicate rabies. The stray dog has no place in a civilized community and the physician need only make his voice heard to eliminate potential danger. Most of us are either soft voiced or inarticulate.

There were 18,466 reported dog bites in the State of Illinois, during 1936. This should be impressive enough to force us from our lethargy. Fig. 1 shows the distribution of these injuries by counties. It seems reasonable to suppose that many more occur, in view of the large discrepancy in numbers between those reported in the various counties. Such figures offer a direct challenge to the medical profession and all public health agencies.

Fig. 2 shows the geographic distribution of 263 dog heads examined during 1936 by the Department of Health for the State of Illinois and found positive for negri bodies. The number of animals bitten by these dogs or the financial loss from their destruction is not known. Neither do we have the figures on the number of persons bitten by these 263 dogs. The potential danger from these widely disseminated foci of infection needs no comment here; it speaks for itself.

At a cost of many thousands of dollars, a large number of the 18,466 persons bitten by dogs were treated with antirabic vaccine. This is a needless waste of taxpayer's money and patient's time. Fourteen to twenty-one injections are unpleasant, time consuming and costly. Ten individuals bitten by rabid dogs in the State of Illinois in 1936 were unsuccessfully treated and died. One need but see such a death once to feel that prophylactic treatment is indicated in every potential rabies. Every dog bite is a potential rabies when the disease exists epidemically in one's vicinity. Slides 4, 5, and 6 poorly depict the suffering of the afflicted child. The look of horror during the convulsive seizure, the scream accompanying the pharyngeal spasm, the wide palpebral orifice and the bloody salivation are characteristic of the disease.

The prevention of rabies may be accomplished in the following way:

A. Control of Dogs
   1. Working dogs only may be free without muzzle or leash.

Read before Joint Session of Sections on Medicine, Surgery, Eye, Ear, Nose & Throat, Public Health & Hygiene & Radiology of Illinois State Medical Society, Peoria, May 20, 1937.

2. Dogs kept as pets will be muzzled or on a leash when not on the owner's premises. Immunization affords still further protection.
3. All stray dogs will be empounded or destroyed.

B. Care of Bitten Persons

1. Local treatment.
   a. Whenever the skin is broken by an animal bite, it should be surgically cleansed and immediately cauterized with fuming nitric acid, using a glass rod or capillary pipette. It should be carefully used so that all of the injured tissue is fulgurated. Where bone or cartilage is injured, 95% phenol is preferable to nitric acid.
2. Anti-rabic vaccine should be administered.
   a. To anyone bitten or contaminated by a rabid animal.
   b. To any person bitten by an unknown, uncaptured dog.
   c. To anyone bitten about the head and neck.
   d. To anyone bitten by a sick animal or one which becomes sick while held for observation.

The principles of treatment as outlined are based on a report of 69,541 cases by McKendric, from the Pasteur institute. With this treatment, 0.23%, or 162 persons died. Cauterization was not done or was done too late in many of the fatal cases. Vaccine treatment was begun late in many of the others. The disease is a preventable one, but when it once occurs death results. No individual has ever been known to recover.

185 N. Wabash Avenue.

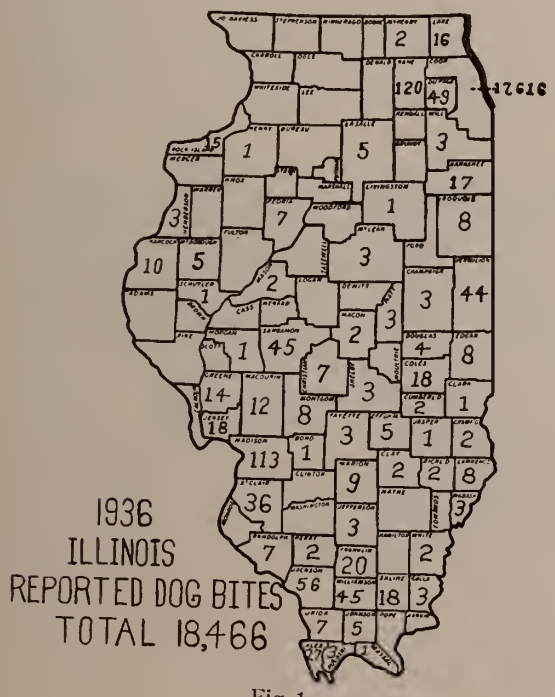


Fig. 1



Fig. 2

DISCUSSION

Dr. Maurice Schneider, Chicago: The diagnosis of rabies in a patient is extremely important from a public health standpoint. Other dogs and other persons may have been infected by the same animal. An immediate search of a neighborhood may prevent further fatalities, and by the elimination of stray dogs, may localize what might otherwise become a general epidemic. The diagnosis is dependent upon the history of a bite or intimate contact with a dog or other animal, ill or dead from rabies. In the presence of the disease in epidemic or endemic form, every animal ill or dying with paralysis, or with a violent change in disposition, should be looked upon with suspicion and the brains of all such animals should be examined for Negri bodies.

In a series studied at the Cook County Hospital, early symptoms, when taken in conjunction with a history of a dog bite, were sufficient for diagnosis. The earliest symptoms were those of a change in disposition, varying in length from one to seven days. It was unusual to have patients admitted to the hospital at such an early stage.

On entrance to the hospital patients not in a terminal stage were mentally clear, soon became talkative, very agitated and physically hyperactive. Accom-

panying these periods of agitation there was frothing at the mouth, inability to swallow, and vomiting—in most instances of a bloody fluid. The periods of agitation alternated with phases in which the patient appeared calm and exhausted. Convulsive seizures could be brought about by slight mental or physical irritation.

Pharyngeal spasms occurred during which the patients screamed with pain and often violently grasped their throats. Convulsive seizures were very violent, the children being tossed about without control. Temperatures were usually high, varying from 103 to 108 degrees F. The pulse was exceedingly rapid, being



Fig. 3

out of proportion to the fever and rising with each convulsion. Blood counts showed a leukocytosis varying from 15,000 to 20,000, of which 80 to 90% were polymorphonuclear leukocytes. The urine showed albumin in most instances, and in two cases sugar was present.

Spinal fluid examination was negative in all but one case studied. In a woman who had been ill for one week, who was undiagnosed until Negri bodies were found at autopsy, the spinal fluid showed a positive test for globulin and 125 lymphocytes. Spinal sugar and chlorides were normal. The laboratory findings were those of an acute infectious disease with cerebral trauma.

All cases died, and all showed Negri bodies at autopsy.

ACUTE INFECTIONS OF THE JAWS

Frederick W. Merrifield, M. D., D. D. S.
CHICAGO

Acute infections arising in and about the oral cavity are of common occurrence, and because of the unfortunate terminations frequently seen, they become important as surgical conditions

The teeth themselves are unique anatomical structures, rather innocent in appearance, and yet they provide one common spot upon which dentist, physician and surgeon meet and often quarrel.

The dentist uses them to demonstrate his ability in restorative work, the physicians as a happy hunting ground for foci of infection, and the surgeon is called in to treat the infections which frequently occur when the teeth become diseased.

The jaws are normally resistant to infections, but in the event of insult added to infection they become peculiarly susceptible and osteomyelitis results, preponderantly in the mandible.

The soft tissues about teeth and jaws are susceptible to cellulitis, varying from a simple infection to a rapidly developing, overwhelming affair from which the patient may die in a few days.

While it is true that acute infections do arise from salivary duct obstruction or cyst infection, acute infections about the jaws usually trace their origin to the tissues in and about the teeth, either the peridental membranes or the pulp, as a result of some inflammatory process. Almost always the severe cases are complicated by trauma.

There are three common sources of infections of this type:

1. Death of the dental pulp as a result of decay or trauma, paving the way for the development of alveolar abscess.

2. Lesions of the peridental membrane, with the development of suppurating pockets along the root of a tooth. These pockets may close over and initiate the lateral tooth abscess.

3. Infections occurring as a result of persistent gum flaps over partially erupted teeth, occurring usually in the wisdom tooth region, particularly in the lower jaw.

The second and third of these sources of infection usually present no serious difficulty. The second condition responds to prompt incision and drainage, and the third condition is amenable to

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the localizing influence of heat and irrigations, resulting in serious complication only when extraction is attempted before the infection is controlled.

These infections originating around partially erupted wisdom teeth, covered by a more or less loose gum flap may be quite serious. I believe such an area may be the nidus of infection responsible for the recurrent attacks of trench mouth or acute ulcerous gingivitis, as the infection was named by Thomas L. Gilmer, who published an excellent description before the organisms responsible were discovered by Vincent and Plaut.

Extraction of these teeth during a period of local inflammation may result in a severe infection.

For the purposes of this paper we are particularly concerned with infections originating from the first of these three sources, viz., those which occur as a result of infections of the dental pulp.

It seems to be true that jaw infections may occur as extensions from the nasal or antral mucosa, as blood-borne infections or as extensions of skin infections such as the furuncle.

We believe, however, that infections about the teeth are responsible for the great majority of jaw involvements.

In clean, edentulous jaws these infections are never seen except as a result of injury, such as fracture.

Acute true alveolar abscess may occur as a result of death of the dental pulp with infection spreading through the apical foramen of the tooth, or may occur as a flare-up of a chronic alveolar infection of long standing, and from the same source.

In both cases cellulitis of some degree occurs as an extension through the periosteum into the surrounding soft tissues.

In infections following soon after the death of the pulp, ill-timed extraction of the offending tooth is likely to result in the extremely dangerous spreading infection, whilst that occurring after the bone has already been invaded by the chronic infection is more likely to lead to osteomyelitis.

Acute alveolar abscess exhibits all the signs and symptoms of an acute inflammatory process. The gum is tender, swollen, red and the tooth is elongated and tender to percussion. There is intense pain and elevation of temperature.

As pus forms and perforates the bone, swelling will increase and symptoms of cellulitis appear according to the location of the abscess, in the upper or lower jaw. Trismus will appear as the muscles of the lower jaw become involved in the inflammatory mass.

Infrequently, the extension of the infection is to the tissues forming the floor of the mouth, with added discomfort in swallowing. If the infection spreads with great rapidity and fails to localize, binding all the soft structures into a boardlike mass, we have the condition known as Ludwig's angina.

Dental infection is the most common cause of this condition, in which there is a high mortality rate.



Fig. 1. (Left) Diagram illustrating variations in course taken by dentoalveolar abscesses in upper and lower jaw. Fig. 2. (Middle) It is desirable to avoid such incisions as this above the lower border of the mandible which leaves disfiguring scars and may injure important structures, such as facial nerve fibres and parotid duct. Fig. 3. (Right) Incisions for through and through drainage of ascending suppuration over ramus of mandible. One opening below the border of the mandible and one above the zygoma. Injury to the important structures is avoided, and scarring is negligible.

Because of the extremely hard and unyielding swelling, the greatest difficulty is experienced in swallowing and respiration. Sepsis develops and pneumonia or edema of the glottis may supervene.

The diagnosis of acute alveolar abscess is usually a simple matter. Submaxillary swelling from this source is a cellulitis and not a lymphadenitis as pointed out by Sébilean,[1] and the presence of trismus is an important point to be observed.

Swellings resulting from ranula, cyst infection, or salivary gland obstruction are differentiated on the basis of history and examination.

The treatment of acute alveolar abscess is drainage. The picture of a person with neckerchief swathed, swollen face, is an ancient one, typical of acute alveolar abscess.

The treatment accepted then, and by many today, is immediate extraction of the offending tooth.

It is true that in a large number of cases this treatment is adequate. However, it is also too true that this treatment given in too many cases results in disaster, extreme embarrassment for the operator and grave illness for the patient, with often deformity or death.

The claim that immediate extraction provides prompt drainage is not well founded.

Even in the presence of pus, drainage is not always secured, and such a procedure merely adds the burden of trauma to already overtaxed tissues.

A better plan is to aid localization by means of heat, make early incision within the mouth through the periosteum over the suspected area and defer the extraction of the offending tooth until the acute symptoms have subsided.

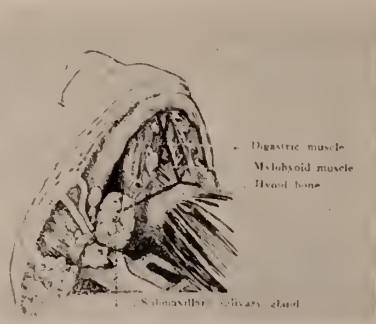
In the upper jaw almost invariably drainage may be obtained through intraoral incisions.

In the lower jaw it is more often necessary to drain extaorally.

Skin incisions should be made beneath the lower border of the mandible and stop at the superficial fascia; exploration for pus should be done by blunt dissection.

It should be remembered that the facial artery and accompanying inframandibular branch of the facial nerve cross the mandibular border.

In the event that suppuration extends upward along the ramus, it may be necessary to make an incision along the lower border of the zygoma. These incisions may be connected and a tube inserted to obtain through and through drainage.



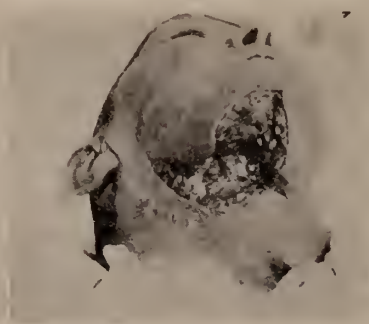


Fig. 4. (Left) Location of the submental and submaxillary lymph nodes. Lines of incisions for dividing the digastric and mylohyoid muscles in an indurating cellulitis of the floor of the mouth. Fig. 5. (Right) Showing how the tissues open up after making the incision described for Ludwig's angina.

In all cases of acute alveolar abscess varying degrees of cellulitis will be present. In the upper jaw swelling may occur in the cheek; the eye may be closed.

In the lower jaw there will be submaxillary swelling and the floor of the mouth may become involved.

Unless complicated by dental trauma, the cellulitis is controlled by moist heat and subsides or progresses to abscess formation, necessitating drainage of the soft tissues.

The rapidly developing and spreading infection in the soft tissues, from which the patient dies in a few days, usually follows dental trauma inflicted during the early stages of an acute alveolar infection.

The septic indurations of the floor of the mouth, of which Ludwig's angina is the most



Fig. 6. (Left) Dorothy L. A. Showing jaw involvement on presentation. B. Incisions made for drainage. Fig. 7. (Right) Condition, November 21, 1930.

serious, are to be treated by early incision. This procedure provides for drainage and freedom from the upward pressure which causes dysphagia and respiratory embarrassment. Done under local anesthesia, these incisions should extend in the midline from the symphysis of the mandible to, or beyond, the hyoid bone and laterally on either or both sides from hyoid to the angles of the jaw, extending through the deep fascia. Figs. 115-116 (Blair and Ivy).

Search is made for pus and the wounds packed with gauze. If respiratory embarrassment persists and pneumonia is ruled out, tracheotomy is to be considered.

The bones of the jaws become involved in acute inflammatory processes, either as a periostitis or as an osteomyelitis, or both together.

The pus of an alveolar abscess may immediately find a way through the bone and spread beneath the periosteum, endangering the bone in this area, or it may progress through the central cancellous bone.

These are the common sources of osteomyelitis or necrosis of jaw bones, although such conditions infrequently occur as a result of septicemia, specific infections, eruptive fevers and metallic poisons.

So vast an amount of work has been done on these acute infections of the jaws during the last forty years by G. V. Black, Blair and his associates, Wilensky and many others that they cannot be denied definite surgical importance.

The whole subject has been epitomized by Blair in a rather classic monograph entitled "The Ulcerated Tooth."[2]

Blair and Brown, reporting on osteomyelitis of the jaws, give a tabulation of 40 cases, 33 of which were apparently associated with tooth infections.[3]

In this series the lower jaw was affected over four times more frequently than the upper.

They also mention the fact that Heister in 1710 warned against extractions in inflammatory infections of the jaws.

In a report of another series of cases, Brown and Tung[4] find that the ratio of lower to upper jaw infections remains about the same, i.e., 4 to 1.

The greatest number of infections occurred between the ages of 11 and 50. The greatest incidence being in the third decade.

In 234 cases tabulated, 197 were directly associated with the teeth as follows:

1. Spontaneous occurrence following dental caries, 70.
2. Associated with fractures, 17.
3. Extraction during acute stage of infection, 105.
4. Associated with root canal treatment, 5.

The remaining 37 cases combined all other sources.

In acute bone infections the fulminating stage is followed by the chronic stage in which the infected bone is absorbed, or in which sequestra form, depending upon the virulence of the infection.

The early symptoms of acute alveolar abscess and osteomyelitis are essentially the same, and bone involvement may be suspected if recovery does not follow adequate treatment of the acute abscess.

The fever and prostration will be greater and the teeth will become loosened, whilst pus will be detected emerging from around them or through sinuses in the soft tissue; probing may demonstrate denuded bone. Until such time as the

bone becomes decalcified, x-ray examination reveals little evidence.

In the treatment of osteomyelitis of the jaws we have adopted the wise counsel of Blair, who used as his text the Italian proverb, "He who goes slowly goes safely; he who goes safely goes surely."[5]

There are three cardinal principles of treatment:

1. Establish drainage with least trauma.

2. Wait for virulence of infection to subside, during which time the dead bone has a chance to separate and new bone to form. If this principle is observed, the continuity of the jaw will be preserved. It is during this period that the patient's morale and resistance will be tested; everything should be done to bolster and improve both. Free drainage must be maintained throughout this time.

3. Removal of sequestra, without disturbing the surrounding bed of granulation, if possible.

Teeth (or tooth buds in young mouths) are best left alone. These tissues show remarkable recuperative powers and are unquestionably valuable, in the event that pathological fractures occur, for wiring the jaws.

In young mouths the erupting teeth play an important role in the development of the jaws, and preservation of the tooth buds averts the tragedy of gross deformity.

This conservative plan of treatment is approved by most surgeons, although early and radical bone surgery is practiced by a few. It would appear that a plan which rarely if ever results in failure is to be preferred to one in which too energetic interference may imperil the regenerative powers of the bone and at best may necessitate bone grafts or transplants to bring about a satisfactory result.

Summary.

1. Prevention of tooth decay, or adequate early treatment when it exists does much to reduce the incidence of acute jaw infections.

2. Acute infections of the jaws are definite surgical conditions requiring prompt but conservative treatment.

3. The importance of physical and laboratory examinations cannot be overemphasized.

4. Nursing care should be of the best. Because of the dysphagia often present these patients are dehydrated and lack nourishment.

Intake of fluids and nourishment must be provided as indicated.

122 South Michigan Ave., Chicago, Ill.

Case 1. Mr. X., was brought to our clinic with the idea of determining whether or not his total blindness might have resulted from the extraction of an infected lower molar.

His story was that next day following the extraction he had a severe secondary hemorrhage. This was controlled and four days later, during which time great pain had been suffered, marked swelling of the face occurred.

He was taken to a local hospital and massive foments were applied. The swelling extended over the jaws and face, the eyelids being involved so that the patient was unable to see.

Incision and drainage reduced the swelling after several days but the vision in both eyes was gone.

Examination revealed the fact that the right globe was completely atrophied, and whilst the left was normal in appearance vision was totally lacking.

These are the uncorroborated facts of the case, and the mechanism of the infection must therefore become a matter of speculation.

It is known that there is direct venous drainage from the lower jaw through the inferior ophthalmic vein,



Fig. 8. (Left) Radiogram, September 20, 1928. Fig. 9. (Middle) Showing unerupted permanent teeth surrounded by an area of infection, October 22, 1928. Fig. 10. (Right) Radiogram, April 3, 1929.

and also the cavernous sinus, also metastatic infections from tooth infections have been known to reach the choroid.

That a pan—ophthalmia or even a sympathetic ophthalmia might eventuate, is conceivable.

Case 2. Mrs. A. U., aged 46 years, entered the hospital on June 11, 1930, complaining of a lower jaw swelling of one week's duration, following the root canal treatment of a lower bicuspid tooth, entailing the removal of a dead pulp, five weeks previously.

On admission the temperature was 103.2. There was a marked swelling involving the floor of the mouth and the anterior triangles of the neck.

The skin over the swelling was tense and red and very tender.

Admission Diagnosis: Osteomyelitis of lower jaw with acute cellulitis. One day later patient was given ether and an incision made beneath jaw for drainage.



Fig. 11. (Left) Radiogram, November 21, 1930. Fig. 12. (Right) Radiogram, October 1. 1935.

At first there was only slight drainage, but the temperature began to drop, and in three days the discharge of thick greenish pus became profuse.

Culture report of material from incision: Medium heavy growth of Staphylococcus aureus, hemolytic strains. Medium heavy growth of Streptococcus, viridans.

June 28, '30. Jaw x-rayed and a good deal of rarefaction was noted.

June 30, '30. It was noted that the teeth in lower jaw were becoming loosened.

July 9, '30. First of loosened teeth picked out without anesthesia. General treatment by drainage and irrigations continued. The patient's general condition improved. Her temperature fluctuated between 99° and 101°.

July 18, '30. First sequestra began to protrude through soft tissue. Several more teeth were extracted.

July 28, '30. Large sequestrum removed from lower bicuspid region. 5x3x2 c.m. Particles of bone were removed from time to time until patient left hospital August 6, 1930, and was to report for further treatment at office.

Sept. 11, '30. Three large sequestra removed.

Sept. 23, '30. Three sequestra removed.

Oct. 7, '30. One large sequestrum removed.

Oct. 15, '30. Three sequestra removed.

Dec. 4, '30. Large sequestra removed, drainage practically at end.

Dec. 23, '30. No drainage except from one sinus.

Jan. 16, '31. Progress satisfactory, still one sinus.

Feb. 19, '31. Very slight drainage.

March 19, '31. Two small sequestra removed.

April 2, '31. Apparently well.

May 4, '31. Progress satisfactory.

June 4, '31. Entirely well. Regeneration of practically all body of mandible.

Treatment 12 months.

Case 3. Mr. H. F., aged 29. Patient entered hospital complaining of a painful swollen left jaw.

He had had pain in the first lower left molar for about 2 months.

A dentist attempted to extract the tooth but without success.

The pain continued, and four days later the extraction was completed under nitrous oxide anesthesia. The pain grew worse and swelling began to appear.

The temperature began to rise, and in two days was elevated to 103.3.

There was very little salivation. The gums in the region of the first molar were deeply infected and swollen, with several white ulcerated areas on the outer gum and inner cheek. The teeth on either side of space were not painful.

Externally, there was slight swelling below and behind the angle of the jaw, with a few deep cervical glands palpable.

Tenderness extended from below the jaw margin up to the ear and on to the supra-zygomatic region. Movement of the ear elicited pain in the ear.

Under the influence of sedatives—hot applications and hot mouth washes, the condition of the patient improved, although slowly, and with quite wide daily variations in temperature.

Five days after admission localization appeared to be accomplished, and incision externally released a lot of foul smelling pus. Denuded bone was felt through the incision. Moist dressings were continued and eight days after admission temperature was normal.

Patient was discharged 14 days after admission. Smear and cultures in this case showed many fusiform

bacilli, with cultures of mixed staphylococcus and a gram positive bacillus. Wasserman negative.

X-ray examination showed an irregular area of rarefaction of the jaw bone underneath site of second molar extraction.

Case 4. Mr. J. S. G., aged 35, entered the hospital on January 16, 1937. On admission he complained of pain, tenderness, swelling and redness of the left jaw, left cheek and left side of neck. Temperature was 103 degrees F.

Examination confirmed the complaint. The urine showed plus albumin but otherwise normal. The white blood count was 7,700.

Heat was applied, fluids given. Pain was controlled with salicylates and on January 18 the left molar region was incised through the buccal tissue.

A quantity of pus was evacuated. The temperature fell to normal, and the patient's complaints began to disappear.

The patient was discharged, on January 26, with the diagnosis of:

Acute periostitis and alveolar abscess originating from a long-standing peri-apical infection.

Case 5. Dorothy L., aged 7 years. This patient presented, complaining of a swelling involving the left lower jaw and extending into the neck.

Six months previously she had had an aching lower left 1st molar filled. A week or so later an acute alveolar abscess developed and during this period the tooth was extracted under local anesthesia. Hot applications were advised and 24 hours later swelling increased and spontaneous discharge of pus occurred in the cuspid region. Five weeks later an abscess pointed beneath the mandible. This was treated by incision and drainage, and the patient then referred to our clinic.

The general condition of patient was good, and there was no particular pain or discomfort except a generalized tenderness over the left side of face which was badly swollen. Temperature was 100.2°.

Mouth examination revealed a hard subperiosteal swelling extending from the angle of the left side of the jaw forward to the symphysis. Extension had occurred into the neck, the swelling being hard and diffuse. A yellowish purulent exudate drained from an incision beneath the chin.

The mouth was unclean and the teeth were badly decayed.

This patient was treated conservatively, adequate drainage maintained at all times and sequestrae removed as indicated.

The unerupted permanent teeth were preserved and the patient recovered completely without deformity.

She was discharged and referred to an orthodontist in March, 1930, eighteen months after the onset of the acute infection.

The x-ray illustrations will show the progress of this case.

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Note: Figures 1 to 5 from Essentials of Oral Surgery, Blair and Ivy, 1936. Courtesy of C. V. Mosby Company, St. Louis, Mo.

A REPORT ON TWO HUNDRED CATARACT OPERATIONS

Watson W. Gailey, M.D.
BLOOMINGTON, ILL.

This is a report of two hundred cataract extractions selected alphabetically from the records of a private practice in what might be termed a rural community. They are not selected cases but are mine run. Of this number, 115 were extracapsular extractions, 8 were delivered by the erisophake after the method of Barraquer, and in 5 cases it was found necessary to resort to the vectis to complete a successful operation. Intracapsular extraction with the Kalt Elsch nig or Arruga forceps was attempted in 90 instances, 72 of which were successful, and in 18 of this number the capsule ruptured making it necessary to complete the operation by the extracapsular method. In 5 of the 18 cases in which the capsule was torn it was possible to extract the capsule after the lens had been delivered, so we might be permitted the statement that 77 of the 90 cases to extract the lens in toto were successful.

Our final visual results are shown on the following chart:

No. Cases	Visual Results
3	20/15
110	20/20
13	20/25
32	20/30
17	20/40
7	20/50
3	20/80
1	20/100
6	20/200
4	15/200
2	5/200
2	Complete Failure

Another way of expressing the results in this series of cases is to say that 182 were in a practical way successful as the patient was, after the operation, able to read and perform near work. Thirteen found it possible to make their way about without aid but could not do near work with any degree of satisfaction and five might be called complete failures.

A complete iridectomy was performed in 63 cases and iridotomy in 137 instances. One eye

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was lost by expulsive hemorrhage and was eviscerated and in two other cases, the final result was an atrophic bulb.

The age incidence ranged as follows:

Percentage of Cases	Age Range
1%	Over 90
4%	Between 80 & 90
30.5%	Between 70 & 80
35%	Between 60 & 70
20%	Between 50 & 60
7%	Between 40 & 50
2.5%	Between 30 & 40

The average number of sutures employed was three with a minimum of one and a maximum of eight.

As to the occurrence of astigmatism:

No cases.	Astigmatism in Diopters
54	None
71	Under 2
40	Between 2 & 3
17	Between 3 & 4
12	Between 4 & 5
5	Between 5 & 6
1	7

Seventeen needlings on 13 cases were performed in the total of 115 extracapsular extractions. These figures are surprisingly low and I believe this may be attributed to the use of irrigation following extraction.

The following chart summarizes the types of cataract:

No. Cases.	Type.
18	Diabetic—4 of which showed hyphemia at first dressing and in one instance there was loss of vitreous.
5	Secondary to iritis.
1	Secondary to glaucoma.
3	Morgagnian.
3	Hypermature.
2	Complicated.
1	Complicated by Central Leucoma.
163	Senile.

Complications during operation are revealed on the following chart:

No. Cases.	Complications.
2	Lens dislocated during incision.
3	Very rigid iris.
2	Lens dislocated in attempting delivery.
3	Incision too small.
1	Unintentional corneal incision.
2	Cocain poisoning.
1	Fish-mouth wound.
13	Vitreous presented.

In the 13 cases where the vitreous presented, the following visual results were obtained:

No. Cases.	Visual Results
5	20/20
1	20/25
3	20/30
2	20/40
1	20/80
1	Nil

High myopia was present in 4 cases and extremely high blood pressure in one case. It was necessary to perform a canthotomy in one case and in two, preoperative blood-letting was neccessary.

Post-operative complications were as follows:

No. Cases.	Post-Operative Complications.
1	Expulsive hemorrhage.
6	Iris prolapse.
13	Hemorrhage in interior chamber. (Poor vision resulted in only one of these cases).
3	Hemorrhage in vitreous.
3	Iritis.
5	Macular degeneration.
1	Low grade uveitis.
1	Vomiting.
1	Iridocyclitis.
1	Deep permanent keratitis.
6	Flat anterior chamber.
1	Bilateral glaucoma.

Types of extraction:

INTRACAPSULAR	EXTRACAPSULAR	
No. Cases.	Complications.	No. Cases.
4	Hemorrhage	9
1	Keratitis	0
4	Vitreous	9
1	Iritis	2
2	Prolapse	4
1	Uveitis	0
0	Expulsive Hemorrhage...	1

The advantage of the intrecapsular technic is the absence of reaction and uncomplicated healing.

Slow restoration of the anterior chamber was found in 6 cases and curiously enough they were all in diabetics. In one bilateral diabetic the anterior chamber was not re-established until the fourteenth day and in the opposite eye on the tenth day. In neither eye did this complication correct itself until the dressing had been discontinued.

Considerable care should be exercised in estimating the condition of nerve and retina before operation. Perception should be estimated at eighteen inches and at twenty feet fixing the examined eye on one light with estimation of the location of a second light. This test will often give valuable information. At least the surgeon will be in a position to make some approximate estimate of what final visual results might be expected.

The question which may arise is what amount of vision constitutes a successful case. In my opinion, one is justified in considering 20/50 vision or better as being far from a failure as in practically all of my cases of 2/5 or 1/2 vision, I have found it possible by careful refraction to give the patient a reasonable degree of satisfaction both for far and near seeing.

A brief description of the technic which was employed is as follows:

The patient is admitted to the hospital the

night before operation. Diabetics are admitted several days prior to operation in order to get the blood sugar reduced to the proper point for surgery. Following admission a pad saturated with acridinium compound is kept on the eye to be operated on for twelve hours. No cultures are made.

One-half hour before operation one ampoule of sodium luminal is given hypodermically. Euphthalmine 2% is instilled four times during the hour prior to bringing the patient to the operating room. Eight or ten instillations of 4% cocain are made during the twenty minutes preceding the operation. Two drops of 1:1000 adrenalin chloride is used a few minutes before the section is made. Either O'Brien or VanLint akinesia was used and in several instances both were employed. A retrobulbar injection of one and one-half c.c. 4% novocain is made. Two or three drops of 1:1000 adrenalin chloride is injected sub-conjunctivally at 6:00. No irrigation of the conjunctival sac is employed. A Bridle suture in the superior rectus muscle is used.

Conjunctival fixation is employed. A broad section is made with a narrow conjunctival flap. In each instance an attempt is made to have a 2 m.m. flap throughout the extent of the incision with perhaps four or five m.m. at the apex.

Immediately following the section, two very fine Moria silk sutures are inserted—each about ten degrees on either side of the mid-line. These are looped and set ready to tie. The apex of the flap is lifted back and an iridotomy performed—care being taken to avoid buckling of the cornea. In case there is blood in the anterior chamber, irrigation is used at this point.

I find that the subconjunctival injection of adrenalin prevents the contraction of the iris sphincter which so frequently occurs after the section is completed.

The flap is then lifted and a Kalt, Elschnig or Arruga forceps is introduced and the capsule grasped as low down as possible. One should see clearly just how much bite is being taken. I must remark that recently I have had a definite leaning toward the Arruga forceps. Deliberate side to side movements are made and counter pressure is exerted with a heavy hook 3 m.m. below the limbus at six o'clock. If the zonule is resistant, side to side sweeping motions are made in the counter pressure. Violence has no place in ophthalmic surgery. Unwarranted manipulations should be avoided at all times.

The lens is tumbled in this fashion and as the lower pole ascends the counter pressure is continued and the lower border of the lens is followed by gentle pressure in an upward direction thus delivering the cataract by a combination of counter pressure and traction. The two loop sutures are now tied and additional sutures inserted to give a firm closure of the entire wound. In extracapsular extractions, irrigation is employed before the first two sutures are tied.

I am particularly anxious to get firm closure at both angles of the wound as I feel that a prolapse is more apt to occur at these points. It goes without saying that the iris is stroked into position before the auxiliary sutures are inserted.

Eserine ointment, 0.25% is instilled in cases having a round pupil and atropine ointment 2% in cases where complete iridectomy has been performed. Small dry cotton and gauze dressings are placed over both eyes and a Fox aluminum shield is sealed in position over the eye operated on.

The patient is lifted from the operating table to the cart on a Gwin Flex band stretcher and from the cart to the bed using the same apparatus. He is kept on his back for three hours after which time with assistance he is allowed to turn on the side not operated on. A back rest is used the next day. Dressings are made daily. The eye not operated on is uncovered at the first dressing. The patient is allowed to sit up on the third day and is permitted to go home on the ninth to twelfth day.

Some explanation should be given the cases where poor vision was obtained.

Case 135 was a female, aged 75 years, with a senile cataract. A simple extracapsular extraction was performed with no complications and four sutures were inserted. The dressings were applied and the patient was about to be wheeled from the operating room when she complained of severe pain in the eye operated on. The dressing was removed and found to be saturated with blood. All the stitches had torn loose and expulsive choroidal hemorrhage was in full swing. An evisceration was immediately performed. The blood pressure in this particular case was systolic 120, diastolic 70 and there were no physical signs of arteriosclerosis.

Case 99 was 50 years old with a mature cataract in the right eye. A combined extracapsular extraction was performed. On the fifth day an iridocyclitis of severe character developed, and finally resulted in an

atrophic bulb with vision nil. This patient had had the benefit of a thorough preliminary examination.

Case 11 had a combined extracapsular extraction with slight loss of vitreous. Four sutures were inserted and a shield applied over the dressing. She was a ward patient, quite unruly and difficult to handle, and when the dressing was made on the second day, a gaping wound was encountered which was immediately closed with some further loss of vitreous. Irodocyclitis followed with an atrophic bulb and vision nil.

Case 54 was a male 60 years of age with black cataract. In attempting to do a Kalt extraction, the capsule was ruptured and the lens sank out of sight. A vectis delivery was accomplished with very slight loss of vitreous. Hemorrhage in the anterior chamber occurred on the fifth day. This was readily absorbed and the best vision obtainable at refraction was 6/200. Macular degeneration was present.

Case 110 was a female, aged 70 years, in which an attempt was made to extract by the Kalt method but the capsule ruptured and extracapsular operation was performed. On the eighth day a large hemorrhage was noted in the vitreous body. The final visual result was 10/200.

Cases 92 and 40 with vision of 15/200, cases 25 and 130 with vision of 20/200, were all found to have macular degeneration. The low visual result in case 170 of 15/200 was the result of a large central dense leucoma which had existed prior to the operation.

Number 15 was a male aged 74 years. Following an intracapsular extraction a severe prolapse was found at the first dressing. The end result was a drawn up hammock-like pupil with vision of 20/200.

Number 24 was an intracapsular extraction with iridotomy in which there was extensive hyphemia on the sixth day. The best vision obtainable was 20/50.

Case 123 was 45 years of age with a severe iris prolapse at the nasal angle occurring on the second day. Five diopters of astigmatism was found at refraction and the final visual result was 20/40.

Case 124 was the opposite eye in the same patient in which an iris prolapse occurred on the second day. Seven diopters of astigmatism was found and the vision was 20/80. I regard myself open for criticism for not having performed a full iridectomy in the second eye.

Case 150 was a diabetic cataract aged 60 years. A combined extracapsular extraction was performed because of a very rigid iris. Hemorrhage in the anterior chamber occurred on the third day. The final visual result was 15/200 after one needling. Central choroiditis was present.

Case 194 was a male aged 52 years with a mature cataract and an uncomplicated intracapsular extraction. On the third day a rather dense keratitis was noted. I felt no apprehension as I expected this would clear within a few days or at most a few weeks. Instead of this, however, the cornea became more dense and in spite of numerous measures used over a period of eighteen months to clear the cornea, no improvement has occurred. The final visual result was counting fingers at five feet. Repeated physical examinations revealed nothing which could have in any way been responsible for this complication. At the present time the cataract on the opposite eye has reached that stage of maturity which almost demands that some operative procedure be resorted to and the question is, what type of operation should be employed. Probably an intracapsular extraction using a broad conjunctival bridge would be the best procedure.

Case 79 was senile cataract in a male aged 70 years. While the section was being made, for some unknown reason, the patient jerked his head and a corneal incision was the result. Iridectomy and intracapsular extraction followed. Central choroiditis was found. Vision of 20/80 was obtained.

Case 103 was interesting because of having had a trephine for glaucoma five years before she came to operation for cataract. There was an iris Bombe with complete posterior synechiae. There was a good trephine bleb and the tension was 20 Schiotz. An iridectomy was completed along with the incision concluding both operations with one sweep of the scalpel. The iris was separated from the lens with a thin spatula and extraction was performed with the capsule forceps. There were no complications other than a slight loss of vitreous. The visual result was 20/20.

Cases 139 and 140 were bilateral extractions in a high myope. Both cataracts were mature and in both eyes the lens was dislocated during the incision, each instance requiring a vectis delivery.

The causes of complete failure were as follows:

No. Cases.	Complications.
3	Irodocyclitis.
1	Retrobulbar hemorrhage.
1	Deep persistent keratitis.

Causes for vision of 20/50 or less as follows:

No. Cases.	Complications.
6	Macular degeneration.
1	Choroiditis.
1	Hemorrhage in vitreous.
1	Extreme hemorrhage anterior chamber.
1	Secondary iritis.
1	Central leucoma of cornea.
1	Deep keratitis.

Prolapse cases were treated with trichloracetic acid. Excision of the prolapse was made in only one instance. There were four cases with poor visual results from prolapse of the iris out of a total number of six.

A cataract operation is now a relatively safe procedure on all types of patients. Unruly patients are few and far between. The recent percentage of good visual results are in my opinion a direct result of the employment of akinesia, retrobulbar injection, the bridle suture of the superior rectus, preliminary sedative, conjunctival or corneoscleral sutures, canthotomy in instances and last but not least rubber gloves and the face mask. It would be difficult to give this list in order of importance.

In conclusion, I would like to say that all

surgeons should analyze at least a reasonable number of their cases regardless of whether or not they are ever reported. It may give you hope or inspire you to greater efforts.

DISCUSSION

Dr. O. B. Nugent, Chicago: I know we have all enjoyed Dr. Gailey's pictures and also his presentation. I know something about the difficulties of making these pictures, and I can appreciate it more than anyone who has not had the experience. It was delightful to sit and watch him perform that operation on the screen. I was very much impressed with his statistics. They are, I think, about the average. They are very good, and if not average, better than average I should say. However, I do not like visual results reported as a criterion as to the operation you are using, whether good, bad or indifferent. Often we see eyes that are blind after operation, and yet from all appearances a perfect operation was performed. That gives that operation a black eye, so to speak. The operator may have performed the operation skilfully, may have been a master at it, but got a poor result. However, the result would probably correspond to that obtained by any other type of operation, as long as the man was a master at the work.

I have been especially interested in the intraocular tension, which I consider with a great deal of respect. If a patient has a high intraocular tension he is a potential trouble-maker. I mean the amount of complication we may have during operation is very high in that type of patient. I respect intraocular tension more than increased blood pressure. I see very few bad results that I believe have come directly from high blood pressure, but I see a high percentage of complications in patients who have a high intraocular tension, or increased intraocular tension. Now, the question is how can we reduce the tension so that the patient is safe to operate on? That is a condition that we must meet as it exists. Once a patient has an established glaucoma, regardless of whether or not the tension is down at the time of operation, he is still a potential complication. We must take into consideration that a certain percentage of glaucoma exists in patients who do not have cataract. That same percentage probably carries through in those cases operated on for cataract. Knowing so little about glaucoma as we apparently do, judging by the different theories about its cause, it is reasonable to believe that a certain percentage of these cases following operation would naturally have glaucoma, because of the percentage of senile cataract in patients who would have had glaucoma later. So we can excuse a certain percentage of these cases as being just a natural senile complication. Diabetics are always bad risks, whether you reduce the sugar in the blood and keep it down or not, they are potentially complicated cases.

Putting a suture in the superior rectus muscle is not an easy process, although it seems simple. I notice very often that many operators are not putting a suture under the superior rectus muscle but in the conjunctiva above the muscle. This is important, because when you want to use the suture in a complicated case, you pull the conjunctiva down in attempting to control the eye and your bridle suture is of no value because it is not in the superior rectus muscle.

He mentioned examination on the second day after operation. I was taught not to look at the eye operated on for five days after operation, not even open it. That was our custom in India. I think this is not necessary when we employ sutures to close the yound. There is no danger in looking at the eye within twenty-four hours, and I find oftentimes that the patients are in need of an instillation of atropine. The pupil may be small, or there may be blood in the anterior chamber or an unusual amount of irritation, so often I feel that atropine should be used within twenty-four hours after operation, although not as a routine. And you cannot use it unless you look into the eye or open the lids. So I feel that examining the eye twenty-four hours after operation is a proper procedure. A shallow anterior chamber following operation is not frequent.

I wish to thank Dr. Gailey again for his very comprehensive presentation.

Dr. Samuel J. Meyer, Chicago: The author is to be congratulated upon the presentation of such a well organized report and the high type of surgery maintained therein. Seventy-two successful intracapsular extractions in ninety attempted cases is an excellent percentage and about equals the reports of some European masters working with much more material. The final visual results are excellent, one half being 20/20 or better. The number of needlings performed is very low and probably helps to account for the excellent final visual result, as needlings, per se, are not without their dangers. Vitreous loss is about 6.5%, which is an excellent average.

The pre-operative and operative technic is good, but I prefer to use a retrobulbar injection of 1 c. c. novocain, 2% solution with m iij of adrenalin 1/1000 solution, rather than injecting the adrenalin subconjunctivally. This results in a lowering of the intraocular tension and makes the eyeball safer to operate upon. I believe that those of us who do any considerable number of cataract operations would benefit materially if we kept careful records of all the necessary details involved, including our operative complications, especially vitreous prolapse, the number of completed positive intracapsular extractions, etc., and a complete list of our post-operative complications and the final visual results. Only by such means can we compare our final results and surgical ability with the older European masters with their series of thousands of cases.

After viewing the excellent moving picture of the operation I want to make a few comments. I notice that Dr. Gailey does more pulling of the lens than he does pushing. I have always been taught to do a combination of both. I think it is safer to divide the trauma between push and pull. It does not make much difference what technic you use. Dr. Gailey sits behind the patient; we sit in front. One should be comfortable when operating. I think his method of sit-

ting before a low table with his hands on his knees will help to minimize tremor. I note he does a lot of irrigating. Personally, I try not to do much if I can see where I place the forceps. One should not attempt to grasp a lens when the anterior chamber is full of blood, because you are apt to push the lens down.

With reference to post-operative glaucoma I think it brings up the old Heine operation, cyclodialysis, which is of value. I think it should be the first consideration when post-operative glaucoma occurs. I think we will find if we follow up these patients we will see more of them; if we do not see them for six months it is too late to do anything. If you could follow your patient for six or more months you might obviate a complete loss of vision, or almost complete loss of vision. We are using at present a cellulose tape instead of adhesive, and we find it much more satisfactory except in hot weather. It pulls off the skin very easily and holds well enough so that the dressing does not fall off. We dress all cases every day following operation so we do not need anything that will hold four or five days. I think you will find it a little safer to use than ordinary adhesive, because some patients will squeeze the eyelids when you pull the tape off.

In operating with a round pupil there is some controversy as to whether one should use atropine or eserine following operation. I think eserine should be used to try and prevent prolapse. I think that on the second or third day one should change to either homatropine or atropine to avoid any adhesions, because in practically all operations you will find there is a tendency to prolapse of vitreous through the pupillary aperture. It may lead to some postoperative inflammation, and if we do not look at it we are sometimes puzzled about a red eye. Another thing is a pulling up of the iris at 90 degrees for some reason that has not been satisfactorily explained. Of course this does not interfere with the final result.

I think Dr. Gailey has done a wonderful piece of work.

Dr. A. B. Middleton, Pontiac: This being a report of private cases is of much more benefit in the way of follow-up than clinical cases. It might be well for younger oculists not to become alarmed and think that elaborate technic is necessary in all cataract cases. The older men know we are passing through the stage in life where we are doing many things with a hope that they will prove to be better than the old methods. Every time anything goes into an eye, whether it be a needle, spatula or anything else, we are taking an additional chance of infection. The simple cataract extraction is fast coming back into routine use. In Dr. Gailey's hands this method is very nice and beautifully done. Be that as it may, the main thing is to obtain good vision in the eye. If his technic gives him the best results, that is the operation for him to use, but if others get good results with their technic, that, of course, is the operation for them to follow.

Dr. Thomas D. Allen, Chicago: Dr. Gailey, we all have cases of postoperative vomiting. I think that has worried me more in the last few months than anything else Would you be willing to tell us how to control that? We thought it might be due to barbiturates, but we still have the postoperative vomiting. We thought it might be due to flushing the bowels or lack of flushing before the operation. I suppose we all run into some complications, at certain times one kind, and at other times, others.

Dr. W. W. Gailey, Bloomington (Closing): Dr. Nugent has said that the visual results obtained in a given type of operation can not be considered as a sure criterion as to how well the operation has been performed. I think this point is well taken. In retrospection I can think of many incisions I have made which have been anything but classic. There are those cases where the iris is caught with the tip of the knife or those in which the anterior chamber has been thoroughly drained before the incision could be completed. There are those cases in which fixation has failed and the completion of the incision has been accompanied by a prayer. I can recall more than a few cataract extractions after which nobody could have been more surprised than I when it was found that an excellent end result had been obtained.

Dr. Nugent has criticized my method of extraction in that I used more pull than push but I would like for him to remember that I was" "showing off" in this picture. I use both the push and the pull, but during the progress of this particular extraction, I gave considerable thought to the photography and concluded that I might possibly fail to demonstrate how clever I was—in other words, I considered the possibility of the pusher being in the way. I could see the lower lens border tipping up and was fearful that my strabismus hook, by some chance, might interfere in making a presentable picture.

About irrigation, it may be that I irrigate too much but I certainly do appreciate a clean anterior chamber and must admit that I irrigated on this occasion more than was necessary. This might also be classed as a "show off" because I was quite desirous of showing the tumbling of the lens and it worked out very nicely.

As to eserine and atropine, I make it a practice to use eserine in round pupil cases and have had no reason to regret it. Some of my friends in ophthalmology use atropine in this type of case under the supposition that there will be less chance of the iris flooding into the wound. I am not, however, prepared to say which method is the method of choice as I have not used atropine immediately following a round pupil extraction.

Concerning vomiting—I am glad to state that in the past five years I have had only one case of pernicious vomiting which was accompanied by any serious complications. This case was operated on by me one week ago. Six hours following operation vomiting ensued accompanied by an extensive prolapse of the iris with choroidal hemorrhage. When the lids were opened one hour after vomiting had started, a clot almost as large as the globe itself, pushed its way out between the lids. The clot was excised, two sutures were introduced and the prolapse excised. It goes without saying there was a detachment of the choroid. As to the control of the vomiting, I must confess I was lost.

I have no remedy to offer for this serious complication. Someone has said that small doses of cocain or weak carbolic solution have a beneficial effect in these cases. Personally, I was completely at sea.

I have had a number of cases of vomiting in which the patient emptied his stomach as a drooling baby might without retching or straining, but this instance I have just described is the only serious case I have had occur in my practice.

It is my wish to thank Doctors Nugent, Meyer and Middleton for their kind words and praise of my picture and for their excellent discussions.

THE RADIOLOGICAL EXPLORATION OF SOME UNUSUAL FISTULOUS TRACTS

JULIUS BRAMS, M. D.

CHICAGO

The radiological exploration of fistulous tracts after the injection of various opaque media is a well known procedure. Both the radiologist and the surgeon are frequently surprised at the source, course and extent of an apparently simple fistulous opening or tract. So well known is this that a surgeon will not often attempt to excise or destroy a fistulous tract without first determining the complete extent of the tract. One need say very little about the choice of the opaque for the visualization of various types of fistulous tracts. The use of bismuth paste in bone fistulae, barium solution for fecal fistulae, the various iodized and brominized oils, the colloidal thorium solutions, skiodan solutions, etc., for the visualization of various types of "blind" fistulae are all well known. In our work the opaque oils have proved most valuable. Any of the common products of this group will be found satisfactory because they are all very opaque, of suitable viscosity, easy to inject, non-irritating and non-toxic, and frequently adhere to the tract wall so that the tract can be studied even after the oil has run out. No special procedure for injection need be described. Almost always a catheter or a cannula can be introduced into the sinus opening. The contents of the tract should be aspirated if possible so as to permit a complete filling with the opaque, and as a general rule it is advisable to warm the opaque before injecting it. Direct injection or flow by gravity may be used and the tract should be injected to the point of capacity indicated by back-flow around the catheter or cannula or by pain. It is always advisable to make the x-ray exposures in at least two projections or stereoscopically, and at times it may be advisable to repeat the examination if it is felt that the course of the tract has not been completely demonstrated.

We appreciate that nothing new is being added to this subject, but we felt that the unusual nature of the cases we are to present might stimulate an interest in this type of radiographic diagnosis and would therefore justify this report.

Case 1. Duodeno-biliary fistula. A white female, aged 72, came in complaining of abdominal pain which was constant but which was worse after eating. Nausea and vomiting were common especially after meals. The



Fig. 1. Barium filled stomach and duodenum showing passage of the opaque meal from the duodenal bulb through a sinus tract to the common bile duct and up through the hepatic duct to fill the biliary tree. Some of the solution passes through the ampulla into the duodenum.

vomitus never contained blood but frequently the patient noticed pieces of food that had been taken several meals before. These symptoms were present for about four months and were getting worse. The patient had lost about thirty pounds in weight. The essential laboratory findings in this case were those of a rather marked anemia. The red count was 3,100,000 hemoglobin was 60%, and the white count was 9500. The physical examination was essentially negative except for some tenderness over the epigastrium and over the liver. A tentative diagnosis of carcinoma of the stomach was made and the patient was referred for x-ray examination. The latter revealed no evidence of any neoplasm. The stomach appeared quite normal, but when the duodenum was studied some of the barium was seen to pass up and apparently out of the bulb into the surrounding peri-

duodenal tissues. The film series on this patient showed a well filled and rather extensive duodeno-biliary fistula. (Figure 1.) The patient was not affected in any way by the presence of barium in the biliary tree and we made serial films after twenty-four hours and after forty-eight hours. Some of the barium solution was still present in the finer branches of the biliary tree after forty-eight hours, but we could not get the patient to return for further observation.

After the rather unexpected radiographic findings in this case the patient was questioned closely and then gave a rather reluctant history of having had an attack of very severe abdominal pain about a year previously. This lasted for several days and at least two doctors made the diagnosis of a gallstone colic and advised hospitalization. The patient refused and had quite a stormy course at home but finally recovered. Obviously, at the time of this colic, the stone was impacted and perforated to produce the duodeno-biliary fistula.

Case 2. Reno-cutaneous fistula. A white female,



Fig. 2. Reno-cutaneous fistula. The opaque solution passes from the sinus opening "O" in the left inguinal region up through the sinus tract "T" to fill the kidney pelvis and calyx and then to pass down the ureter "U" and into the bladder "B."

aged 23, came in complaining of bilateral lumbar pain. She stated that about a year previously she had a very severe left sided pyelitis from which she recovered in about a week. Four months after this she suffered a very severe attack of left lumbar pain which was associated with scanty urination and a fever. An x-ray study at that time showed the presence of stones in the left kidney. Since that time, that is for a period of about eight months, she has had almost continuous pain, fever and urinary disturbances. About two months ago she noticed a small nodule in the left inguinal region. This became swollen and painful and was incised. Ever since there has been drainage of pus from this wound. The physical examination in this case was essentially



Fig. 3. Biliary-cutaneous fistula showing the passage of the opaque solution through the sinus opening "O" to fill the pocket "P" and from this site to fill the gall bladder "G. B.", the cystic duct "C. D.", the common duct "H. C. D.", the hepatic duct "H. D.", and then the biliary tree. In the liver area an irregular collection of the opaque solution is noted in the region of the liver abscess "L. A." Some of the opaque solution passes through the ampulla and into the small intestine.

negative except for marked tenderness in the left lumbar region and along the left side of the abdomen. Repeated urine examination showed a faint trace of albumin, much pus, but no red blood cells. The patient was referred for x-ray study.

Flat films of the urinary tract showed the shadow of a stone in the lower pole of the left kidney. In an attempt to explain the origin of the draining sinus in the left inguinal region we made exposures of the spine but these were negative. Unable to account for the fistula by anything we could see on the flat films we injected the tract with opaque oil. To the surprise of everybody the tract was found to have its origin in the kidney and the injected oil filled the tract to enter the kidney pelvis. From this point the oil passed down through the left ureter and into the bladder. (Figure 2.) Obviously the original source was a renal and perirenal infection with a perforation of the kidney substance, bur-

rowing of the infected material along the muscle planes, and pointing in the left inguinal area.

Case 3. Biliary-cutaneous fistula. A white female, 39 years of age, was first admitted to the hospital with a diagnosis of a pelvis peritonitis. After about three weeks of palliative treatment a large abscess in the right lower quadrant was drained. There was a marked discharge of pus for several weeks but the patient's condition gradually improved. Three months later the patient began to complain of severe right lumbar pain and frequency of urination. At this time the right kidney was definitely tender. Retrograde pyelography showed evidence of a pyonephrosis. The kidney was exposed through a right lumbar incision. Free and encapsulated pus was found in the perirenal tissue and the kidney itself was necrotic. A drain was inserted in the kidney bed and the wound was closed. Drainage was very profuse for several weeks, but the condition of the patient improved so that after about six months the patient was operated upon again and a subcapsular nephrectomy was done. Two weeks after this the patient developed a high temperature and a pain in the right chest. The clinical and x-ray findings were those of a subphrenic abscess. Aspiration yielded some blood tinged fluid but no free pus. The significant thing, however, was the fact that the sinus tract in the right lumbar region continued to discharge pus even after the nephrectomy. The patient was operated upon again and an attempt was made to resect the tract but this was not successful. After a period of about six months the patient again developed a fever and pain in the right chest. At this time about 500 cc. of fluid were aspirated from the pleural cavity. A diagnosis was made of a diaphragmatic pleuritis due to irritation from the persistent infection in the sinus tract and in the renal bed. At this time the patient was referred for x-ray exploration of the sinus tract. About 20 cc. of neo-skiodan solution were injected. Films made at the time of the injection showed the opaque solution running from the skin surface through the sinus tract into an irregular pocket in the renal bed. From this site the solution communicated with the common bile duct and filled the entire biliary tree. The smaller branches of the biliary tree were well visualized, the hepatic and common duct were filled well, the cystic duct was filled and the solution then filled the gall bladder. From the common duct the solution was seen to pass through the ampulla into the duodenum. In the liver substance the dye pooled irregularly in a well localized area. This had the appearance of an area of liver necrosis with perhaps some abscess formation. It may be of interest to note that this patient recovered after several months and left the hospital with the sinus tract closed.

These three cases amply demonstrate the unusual findings which may be demonstrated by fistulography. Equally unexpected findings will be discovered if this procedure is used more often. In our experience we have been able to obtain valuable information in cases of perirectal and periurethral tracts, in various types of abdominal and fecal fistulae, in fistulous tracts originating from some bone pathology, in exploring the extent of pilonidal cysts, etc. We have never seen any ill effects from this procedure and know of no contraindications.

55 E. Washington Street.

BILE PERITONITIS WITH CASE REPORTS

R. E. Lee Gunning, M.D.

GALESBURG, ILL.

Primary biliary peritonitis is a rather rare surgical entity, very seldom correctly diagnosed preoperatively. It is characterized by a rather sudden onset of obdominal pain usually epigastric at first and later localizing in the lower right abdomen, by vomiting, by either diarrhea or constipation, by a fever of 100° to 102°, by the rather rapid development of evidence of intraperitoneal fluid, and by the later onset of the formidable picture known as secondary surgical shock or "shock syndrome".

The first detailed description of this entity was by P. Clairmont and H. Von Haberer in 1910.[1] A number of scattered reports of cases have occurred since. Butkiewiez,[2] in 1936, collected from the literature 124 cases and reported 9 personally observed cases.

The exact etiology is not definitely known. Some form of liver or biliary tract disorder is probably preexistent. Sixty per cent of the cases have had gall stones. The common duct and papilla were totally occluded in only 10 cases. A rather extensive amount of experimental work has been produced chiefly in the form of obstructions to the bile flow and the injection of bile or bile salts into the peritoneal cavity of experimental animals. Free liver tissue itself, also, has been placed in the peritoneal cavity. Some recent work[2] would tend to prove that trypsin plus the activating effect of bacteria, leucocytes and cellular degeneration within the bile passages will experimentally produce an increased permeability of the walls of the bile passages with a resultant non-perforative biliary peritonites. Biliary peritonitis has been reported in all ages. It is more common in women by a ratio of nearly 2 to 1. In over half the reported cases there

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were previous symptoms of months or years of abdominal pains. In less than 10%, was there a history of gall stone colic.

Pathologically, there is an enormous collection of bile stained fluid in the peritoneal cavity, sometimes totalling as much as 3% of the body weight. The fluid has plasma-like characteristics and tends to spontaneous clotting. Bile has been found in the walls of the gall bladder and biliary passages, thus indicating the direct passage of bile salts through these wall structures. An increased permeability of the blood vessel walls of the peritoneum produced by the irritant action of the bile results in the excessive collection of the intreperitoneal exudate. If Butkiewiez' contention that the etiology is trypsin plus bacterial activity in the biliary passages, then we must presuppose some infectious process plus a reflux of pancreatic secretion into the common duct. The findings at operation and at autopsy do not bear out this combination of conditions in all cases.

At autopsy, besides the peritoneal fluid, there is found a marked concentration of the heart blood, petechial hemorrhages in lungs, brain and gastro intestinal tract. There is some form of associated biliary tract disease such as gall stones, cholecystitis, or duct obstruction in about 65% of the cases.

The associated condition of surgical shock syndrome has occasioned both experimental and thoughtful effort for explanation. It seems that it is due to the rapid dehydration of the general body tissues produced by the excessive exudate of the plasma-like fluid into the peritoneal cavity. A similar shock syndrome[3] has been produced by the subcutaneous injection of bile salts,[4] by the subcutaneous implantation of liver tissue, by burns, freezing and other similar traumatic agents. In all of these conditions, there is a loss of plasma-like fluid into the injured tissues. It has been shown that by experimental plasmapheresis, the loss of 4% of the body weight will produce death.[5]

The symptoms are those of an acute intra-abdominal episode. There may or may not be a history of preceding attack of epigastric pain. The onset is usually acute with epigastric or right upper abdominal pain. The abdomen, at first flat and tense, becomes increasingly more distended and painful on pressure. Tenderness, at first in the upper abdomen, frequently becomes localized in the lower right quadrant. Evidences of intra-abdominal fluid are only occasionally elicited. Vomiting is the rule and usually rather severe. Constipation, if present early, later gives way to diarrhea. The temperature, at first elevated to 101° to 102°, later in the course of the disease becomes either normal or subnormal. The development of the fluid is much more rapid than in other forms of peritonitis.

The white blood count is elevated throughout and, as the peritoneal fluid increases, the evidence of dehydration is seen in the high hematocrit reading in the red blood cell count as well as in the leucocyte count.

The diagnosis is not easy; nor is it often made before operation. The surgeon must usually be content to have diagnosed an acute surgical abdomen and treat the condition by an exploratory operation. The usual diagnosis made in biliary peritonitis is acute perforative appendicitis. The condition may simulate acute gall stone attack with secondary local peritonitis, acute perforation of the biliary tract, perforated duodenal or gastric ulcer, or acute pancreatic disease. The condition does not usually reach its acme for three or four days and thus, if biliary peritonitis be kept in mind, all of the above with the exception of perforating appendicitis may be ruled out. The extremely rapid accumulation of the fluid in biliary peritonitis as compared to any other form of peritonitis and the rapid developing evidence of dehydration noted both clinically and in the blood findings are the most help in differential diagnosis.

The prognosis is not good. The mortality in the cases so far reported has been 32%, approximately the same as in perforative disease of the biliary tract. There seems to be no record of morbidity. The cases which have recovered have remained well and there is no report of a recurrence.

The treatment is surgical. Early laparotomy with exploration and the institution of intraperitoneal drainage is of primary importance. Formerly, all intra-abdominal exudation or perforative lesions were uniformly drained. Recently, there has been a marked departure from this principle and drainage has become a rarity. It would seem from the reported results in non-

perforative biliary peritonitis drainage is essential and curative. Appendectomy is usually routinely performed, because the cases are usually operated on under the mistaken diagnosis of appendicitis. Gall bladder drainage, if the patient's condition permits, would seem logical as it offers a line of lessened resistance for the escape of bile.

Much more important, it would seem, even than the surgical measures is the management of the shock syndrome accompanying biliary peritonitis. The replacement of the lost blood volume due to the rapidly developing peritoneal exudate is all imperative. Intravenous 5% dextrose in Ringer's at present seems to be one best aid. Intravenous colloids and transfusions might seem advisable. General shock measures such as inverted Fowlers and circulatory stimulants are, also, indicated.

The following case report with operation and recovery is added to the literature. It is the only case of non-perforative biliary peritonitis occurring during pregnancy that we have encountered in the literature.

Mrs. L. K., a white woman, aged 19 years, was admitted complaining of vomiting and pain in the right, lower quadrant of the abdomen.

Except for two attacks similar to, but milder than the present illness, she had always been well. She had one child one year of age who was well. Her last menstrual period occurred seven months previously. Her pregnancy so far had been normal and she had felt motion about three months previous to entry.

Thirty-six hours before admission, she took an Ex-lax tablet because of mild constipation; within a few hours after this she began to have epigastric pain somewhat colicky in character and almost immediately followed by nausea and vomiting. The pain gradually became more severe and more constant; it did not radiate, nor was it influenced by the ingestion of fluids. About ten hours before admission the pain shifted to the lower, right quadrant of the abdomen and had become increasingly severe till at admission when it was not influenced by ¼ gr. of morphine sulphate. Vomiting had been constant since the onset and consisted of fluids ingested and some bile. There was no blood. She stated that she had felt no fetal movements since the onset of the attack thirty-six hours previously. Her bowels had been loose, but without diarrhea; her kidney function had been normal; she had had no chills and she had not felt feverish.

Except for the two previously mild but similar attacks, the past history was non-contributory.

The examination revealed a moderately obese, white female obviously suffering severe abdominal pain. Her temperature was 99.2°, pulse 96, respirations 26, and blood pressure 120/80. The physical examination was entirely negative with the exception of the abdomen. The abdomen was distended and somewhat tender throughout, but quite exquisitely tender over the lower right quadrant. Muscular defense and rebound tenderness were present in this latter area only. The uterus was the size of a seven month's pregnancy and seemed to be in constant spasm. No fetal movements were noted and the fetal heart tones were not heard. Vaginal and rectal examination confirmed the diagnosis of pregnancy, but gave no further information.

Examination of the urine was negative. The blood showed a hemoglobin of 93%, red blood cell count of 4,580,000, and a white cell count of 26,200. The smear showed 96% polymorphonuclears. Kahn was negative. The icteric index was 8.3.

A diagnosis of acute appendicitis was made and she was taken to the operating room and, under ether narcosis, the abdomen was opened in the lower right quadrant. On opening the peritoneum, there was a forceful gush of a large quantity of bile stained, non-odorous fluid. There was no gas with the fluid. An exploration of the biliary tract revealed the liver normal in size and consistency. The gall bladder was about twice its normal size and under moderate tension, but collapsed on pressure. No stones were present. The ducts were normal and intact. The stomach was normal. The seven month's pregnant uterus and adnexa were normal. The appendix was enlarged to three times its normal size, was kinked and bound down by adhesions evidently from previous inflammatory diseases. It was normal in color and showed no evidence of acute disease. It was removed and the wound closed in layers with a rubber tissue drain down to the peritoneum. The peritoneal fluid, unfortunately, was not sent to the laboratory for examination.

She stood the operation well and was returned to her room in good condition. About an hour postoperatively, she went into profound shock. The pulse became very feeble with a rate of 150 to 160. The respirations rose to 40. The temperature was 102°. Shock measures were instituted and subcutaneous and intravenous fluids were started. Caffeine sodium benzoate and coramine, also, were given. She responded fairly well and, after about six hours, the temperature dopped to 101°, the pulse to 116, and the respiration to 22. Eight and one-half hours postoperatively, she delivered a female infant which lived two hours. Twenty-four hours postoperatively, the temperature was 100°, pulse 92, respiration 20 and she looked very much improved. Intravenous fluids and morphine now were the only treatment being given. On the third day postoperatively, she began to have frequent watery stools. The vomiting had been checked by a Wangensteen aspiration set. In spite of opium and starch enemas, the diarrhea continued until the eleventh postoperative day. On the seventh postoperative day the wound suddenly drained a very large quantity of the same type of fluid as seen at operation. This lessened in amount, but continued to discharge until the fifteenth postoperative day. After the sudden onset of the drainage, she made rapid improvement and was dismissed from the hospital in good condition on the

fifteenth postoperative day. She was last seen three months after the operation and considered herself well.

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DISCUSSION

Dr. John A. Wolfer, Chicago: The subject of biliary peritonitis is very interesting from the standpoint of an analysis of its etiology. I have not had much experience in biliary peritonitis, I am glad to say, because this condition is not seen very frequently, but I have been interested in the mechanism of its production. Some five or six years ago following an observation in the operating room of an individual who had a very large tense gall-bladder which looked as though it were an acute phlegmonous cholecystitis, fat necrosis and pancreatitis, the gall-bladder was removed and microscopic section showed there was extensive necrosis and round cell infiltration, but the cultures from the contents of the gall-bladder and from the walls of the gall-bladder were all sterile. It seemed strange to me why there should be such extensive disease of the gall-bladder without any bacterial invasion. It happened at a time when we were thinking of bile as a causative factor in pancreatic disease. I wondered at that time whether there might be a reverse of the situation and instead of bile entering the pancreas to produce pancreatitis that pancreatic juice might enter the biliary tract and cause disease. Whereupon we started a series of experiments on dogs. We placed a cannula in the pancreatic duct and a T-tube in the common duct, and connected the two outside the abdominal wall using a glass observation bulb. In all the experiments that were successful there was always a flow from the pancreas to the biliary duct system. That bears out the observation of Harms that at the height of digestion the pancreatic secretory pressure is higher than the biliary pressure. In all the experiments in which we conveyed the pancreatic juice into the biliary tract there was found disease of the gall-bladder. In some instances there was found very extensive destruction of the gall-bladder up to complete necrosis. We also frequently found cases of acute cholecystitis in which the dog would become suddenly ill and die, and we would find the abdomen full of bile stained fluid, such as Dr. Gunning reported. It is interesting to note that some of these gall-bladders that looked practically normal at autopsy, showed extensive necrosis on microscopic examination. Blad several years ago reported similar observations. We felt at the time that there was a distinct association between pancreatic juice entering the biliary tract and acute gangrenous and phlegmonous cholecystitis because we were able experimentally to produce the typical pathological picture.

Now the question arises, in the human can pancreatic juice enter the biliary system. As we study the embryology of the pancreato-biliary system, we find that the pancreas arises from two buds, the dorsal and ventral. The smaller or ventral bud appears in the caudal angle between the gut and the liver diverticulum. Often this ventral pancreatic bud comes off directly from the hepatic tube and as the common duct lengthens it carries away with it the duct of that portion of the pancreas (illustrated by slides). The larger portion or dorsal bud arises on the dorsal side of the gastrointestinal stem at a slightly higher level. With rotation of the gastrointestinal stem the smaller or ventral portion of the pancreas will be found lying adjacent to and inferior to, the larger dorsal portion. Fusion of the two parts takes place while the duct of the dorsal pancreas is still the major duct. After fusion of the two portions of the pancreas, the ducts become connected, the ventral duct becoming the larger, the duct of Wirsung, while the dorsal atrophies to form the duct of Santorini.

Therefore, from an embryological point of view we can readily understand that there may be marked variations of the junction of the common duct and the duct of Wirsung. This slide shows the various possibilities: the high junction with the common duct above the ampulla, and the lower one with the pancreatic duct emptying into the ampulla and finally a separate entry into the duodenum with the formation of a spur. We can readily see from these pictures that it is possible with some types of communication to have a common pathway, the pancreatic juice entering the common ampulla and mixing with the biliary fluid. We have proved by experiments in which we introduced India ink into the observation bulb outside the dog's abdomen in a pancreato-biliary intubation that some days later the India ink was found in the gall-bladder, indicating that India ink placed in the bulb was carried with the pancreatic juice into the common duct and from the common duct into the gall-bladder. Now the question is, does pancreatic juice affect the living gall-bladder? Here is a cross section of a gall-bladder twenty-four hours after 10 c. c. of pancreatic juice had been injected into the common duct of a dog, showing extensive necrosis. It was 4 mm. or more in thickness, a typical instance of necrosis. Here is the photomicrograph of the gall-bladder six days after pancreatic juice had been conveyed into the common duct. This gall-bladder looked normal but on microscopic examination there was very extensive necrosis of its wall.

Prior to this time some experimental work was done by Westphal and Schoenbauer in Germany with the same results. Dr. Andrews at the University of Chicago has shown if you introduce ordinary pancreatic juice into the gall-bladder, invariably there follows extensive changes in the wall of the gall-bladder. If you inject pancreatic juice that has been put through a Berkefeld filter, mild reactions follow.

This would indicate that bacterial contamination may play a decided role in the process. Popper has definitely proved, in my opinion, that the amylase found in the peritoneal fluid in cases of acute biliary peri-

tonitis, reaches the peritoneal cavity by way of the duct and not by the blood stream.

There is some question relative to the mechanism by which the gall-bladder contents pass through the wall of the gall-bladder. Blad is of the opinion that there is sufficient destruction of the wall of the gall-bladder to allow the process to take place. Others believe that the wall of the gall-bladder becomes permeable to its contents, thus allowing bile salt and perhaps other substances to pass through, thus producing the pathological picture.

Dr. Paul H. Harmon, Chicago: I would like to briefly show some slides. When bile peritonitis is produced experimentally, changes in the blood are about the same as in other conditions of surgical shock. When surgical work is carried out on these patients they should have supportive measures: blood transfusion, plasma transfusion or acacia solution given intravenously. Intravenous infusions of saline or glucose solutions are less preferable.

The first slide shows the blood pressure record of a dog in which bile peritonitis was induced by intraperitoneal injection of bile salts. You can see the progressive drop in blood pressure over three hours, resulting in death some six hours and six minutes following the injection of this material. When bile salts or any biliary preparation is introduced intravenously there is an immediate drop in blood pressure with an immediate restoration to normal. These animals usually recover.

If one follows the concentration of the blood by means of hematocrit readings one finds the same as in other surgical shock: readings will be increased in exact proportion to red blood cell counts, meaning that the patient should be treated by something that will return the blood pressure and blood counts to normal. Several transfusions were given to the dog of this graph, restoring the blood pressure to normal, then a final drop to a lower shock level occurred with death. This is not an uncommon picture when shock has been present for a sufficient length of time.

We saw but one instance of biliary peritonitis in man but the shock picture was the same. In man cultures yielded B. coli. The colon bacillus produces a substance that gives a drop in blood pressure. The fluid injected from the peritoneum in man produced a marked drop in blood pressure.

ILL-ADVISED NASAL SURGERY

H. L. Ford, M. D., F. A. C. S.

CHAMPAIGN, ILL.

If it be true that nasal surgery is today in such disrepute as numerous writers and members of our own profession would have us believe, why, we ask ourselves, have we (members of one of the oldest surgical specialties) attained such a high degree of imperfection? The saying "once a sinus, always a sinus" is surely not based entirely on a misconception. Surely the family physician who advises his patient not to have his nose operated upon must be guided by previous unsatisfactory experiences with nasal surgery.

Granting that we face a more difficult problem than the general surgeon, namely, the restoration to normal function of abscess cavities, which must remain open and properly ventilated without kind nature's aid in the collapsing of the abscessed wall with obliteration of its contents following surgical drainage, are there not other factors to be considered?

I am sure that *lack of standardized surgical procedure* for definite pathologic entities should rank high as one definite factor, leading essentially to incomplete nasal surgery. This is probably mainly due to lack of uniformity in resident and postgraduate instruction. As practitioners of the present generation, there is little now that we can do about this. However, with the more recent general appreciation of this fault in postgraduate instruction let us hope that the future generation of specialists will realize more fully than the average specialist, graduated ten and twenty years ago, the specific indications for a certain type of ethmoid, maxillary, or frontal sinus procedure. "Shall we do a Mosher, Sluder, Ballenger ethmoid operation in a given case?"[1] In the words of Skillern, in speaking of ethmoid operations. "Age cannot wither, nor custom stale their infinite variety." One school or outstanding surgeon recommends this procedure, whereas another disagrees; and finally the seeker after knowledge learns to decide for himself and choose that procedure which he personally has found cures the greatest number of his patients.

Shall we resect the middle turbinate or not—is the preservation of the physiologic function of moistening, cleansing, and warming the inspired air to be stressed to such a degree that we leave a swollen, diseased concha bullosa after ethmoid exenteration—only to cause further trouble and eventually lead to another operation? You say this is purely a question of surgical judgment, to which I say, "Yes," but teaching of embryo surgeons should be more explicit, with more stress being put on painstaking study in diagnosis and proper appreciation of the definite indications for various surgical procedures and their modifications.

In an acute, closed empyema of a frontal sinus,

Read before Section on Eye, Ear, Nose and Throat, Illinois State Medical Society, Peoria, May 18, 1937.

wherein the lateral roentgenogram shows an angulated, narrow floor encroached upon by anterior ethmoid cells, should we trephine externally for drainage and irrigation, should we merely infract the middle turbinate and treat conservatively, fearing a meningitis if we did more, only to find that our patient goes on to a frontal lobe abscess, generalized meningitis and death? Should we do an intranasal frontal sinus operation using the rasp and thereby most likely produce in the end a complete stenosis of the naso-frontal duct: or should we, after deciding against the external trepanation, conclude that our best chance of success lay in resecting the tip of the middle turbinate and cleaning out the agger, infundibular and fronto-ethmoid cells. Personally, I should probably choose the external trepanation under the brow, irrigating through the retained rubber tube until the acute symptoms subsided and the naso-frontal duct became again patulous. If for any reason I did not follow this procedure, I should probably take my chances with the anterior ethmoid approach intranasally, leaving off the rasp. If the case is one of frank empyema of more than ten days' standing I feel that temporizing by mere infraction and argyrol tampons, etc., is definitely dangerous to the patient. There are times when conservatism is extreme radicalism. Such reasoning and deductions—which I grant are possiply not in accord with your ideas as to correct management of the case cited, I do not recall having been taught during my residency or early post-graduate work, or having read in any one text. My solution of this problem, as well as many others, represents a certain amount of study, visiting of various clinics, observation of results obtained, the discounting of overzealous advocates of original or modified procedures and, above all, the taking into account my own successes and failures in the handling of similar cases. If this is called "surgical judgment," then I feel that the time is certainly propitious for some five or ten eminent authorities in our field to get together and write a book on "Rhinologic Surgical Judgment," thereby giving us the benefit of 300 years' experience rather than 15-30, by which most of us practice our specialty. Such a text might also be called "The Sinus Problem—Collectively Approved Canned Experience."

Important as it is, however, lack of standardization of surgical procedures is, I feel, secondary to one other factor, namely, *ill-advised nasal surgery* in the sense that, while the case may be surgical, the operation performed is not the procedure of choice for the pathology present or as a matter of fact the wrong sinus is operated upon—a submucous resection performed when the patient needed an antral window, or other comparable errors made. This can not but lead to repeated operations, unnecessary destruction of tissue and, finally, failure to relieve the patient of his complaint.

Foremost in this proposed text on canned experience, I should like to see listed the indications for submucous resection per se. Foremost among them, I am sure, we would not find vacuum sinus headaches and catarrhal deafness. Mind you, this text is to be a medical treatise and not a text on economic trends and principles.

It is my belief, based upon my own personal experience, that ill-advised surgery is due to lack of complete and detailed understanding of the case at hand, a lack of thoroughness in working up the case and a hasty evaluation of the findings presented. This factor, granting we are of average intelligence, and not too lethargic, is within our power to rectify. If it depends upon proper evaluation of signs and symptoms presented by the patient, properly conducted examination, laboratory and clinical study available, then it must resolve itself into a problem of correct diagnosis. Given a correct diagnosis, with the institution of indicated remedial measures, the patient should be headed toward recovery. It is in this connection that I desire to call attention to a few related points of clinical and practical importance in the hope that they may stimulate thought and discussion on your part and in the conviction that I, in turn, shall improve myself by the study and reflection incident thereto.

May I first of all point out probably the most frequently operated on of all non-operative nasal disorders, namely, allergy, per se. The water-logged nose with its recurrent polypi has added much to our reputation as perennial surgeons. While removal of obstructing polypi is often necessary, the problem is essentially one for the allergist. I feel safe in saying that my nasal surgery has fallen 20% since I have come to realize the importance of allergy. Ignorance was not without its compensation from a finan-

cial point of view. Philosophically, however, the internal revenue department gets less and my patients are certainly immensely better off. I can not but think of the innumerable times, however, I unknowingly contributed to the ill repute of rhinologic surgery in that pre-allergic season.

Despite the frequent criticism that allergic tests are notoriously unreliable, diet restriction and desensitization often unsatisfactory, the fact remains that cytologic examination of the nasal discharge reveals in an amazingly larger number of suspected sugical cases, a preponderance of eosinophiles on the slide and the search must go on for the offending agents, while the patient is saved a trip to the operating room. Zinc ionization (iontophoresis) in spite of its producing of fibrosis with diminution of edema and vascularity, has certainly not received the stamp of collective approval as a means of treatment in such cases.

In this same category, McLaurin,[2] after a comprenhensive review of the literature on paranasal sinus disease and chest conditions, lists the indications for sinus surgery in *asthmatics* as follows:

"1. Sinus disease that would demand surgery, regardless of the existence of asthma.

2. Cases where the removal of polyps, or simple methods of drainage and ventilation, have helped the asthmatic state, but where such measures will not completely eradicate the sinus disease.

3. Cases in which recurrent attacks of rhinitis with exaccerbation of the sinus disease serve to precipitate attacks of asthma.

4. Cases in which the patient has been proven sensitive to his own infection, but the local sinus pathology would not ordinarily require surgery.

5. Where sinus disease exists and it has been found that attacks of asthma can be relieved by cocainizing the sphenopalatine ganglion."

In the history of the individual patient let us recall that there are many other causes of *headache* than sinus disease.[3] The most frequently overlooked is that of a latent eye muscle unabalance. *Exophoria,* so common, a frequent cause; and *hyperphoria,* less common, though most always producing a headache. Other ocular conditions—ametropia, early presbyopia, accommodative insufficiency and the dull ache of retinal fatigue. Careful refraction with phoria tests, and treatment for an existing imbalance are here essential—not a submucous resection to relieve a supposed vacuum headache (not as important a clinical feature now as in the past). However, we must realize that muscle imbalance is due very frequently to sinus disease; that ocular and sinus headaches co-exist. Notwithstanding this, however, we frequently find that the use of proper glasses cures headaches which have resisted one or more operations on the sinuses. A small error of refraction may account for a severe headache.

The patient's general *constitutional state* furnishes the clue oftimes to the cause of his nasal obstruction, as witnessed particularly in the hypo-thyreoid. A blood Wassermann not infrequently keeps us from sticking our necks in the proverbial direction.

It would be difficult to improve upon the excellent classification of the essential factors in establishing a diagnosis of sinus infection given by Canfield before the academy in 1922. In the order of their importance he enumerates them as follows: The clinical examination, the x-ray, transillumination, the history, the symptoms. He further divides the clinical examination in the following manner: The general appearance of the interior of the nose: the condition of the nasal mucous membrane; the presence of predisposing factors; the condition of the lateral nasal wall; the presence of discharge, its character, location, and amount; the effect of change of posture; the effect of shrinking of the mucous membrane; the presence of polyps: the recognition of the sinus or sinuses involved; the use of the probe; the use of suction; the bacteriologic examination; the exploratory puncture; the condition of the nasopharynx; the condition of the tonsils and teeth.

To this outline we might add the nasopharyngoscope and stereoscopic and radio-paque roentgenography.

A word or two relative to some of these procedures:

While transillumination is very often of great aid in affording positive corroborative evidence of sinusitis, it not infrequently is definitely misleading—both in antra and frontals. For the latter particularly, it cannot be compared with the reliability of x-ray.

While it is too much to expect the rhinologist to be a specialist in all the branches of medicine, yet I feel that we should be sufficiently versed in the field of roentgenology to give proper instructions to the x-ray technician to obtain what we desire on the film and to make the final diagnosis of what the film together with the clinical picture records. Roentgenology, while it may have cer-

tain limitations, particularly in disclosing ethmoid and sphenoid pathology in some cases, is to my mind our greatest single aid in pre-operative diagnosis. In the words of Campbell Smyth—"the diagnosis is on the film awaiting you."

This, however, providing it is a properly taken film. To those who have not studied the text on radiography of the "Nasal Accessory Sinuses" by Frederick M. Law[4] of the Manhattan Eye and Ear Infirmary, I sincerely recommend its purchase and frequent review. No rhinologist can afford to be without access to the information contained within its covers. Having familiarized ourselves with this text or one similar, we are then in position to realize the importance of stereoscopic plates, proper and improper positioning of the patient, the need of a fine focus tube with screens not too fast, and why pictures taken without a Bucky diaphragm best reveal mild pathologic changes, whereas those with Bucky are best suited for anatomic details desired, as in the basal or submento-vertex view. Many all-important facts are lost to the man who does not appreciate the careful interpretation of a properly taken set of films. The anatomical structure and relationship of the frontal sinus and anterior ethmoids, and the relation of the angle of the floor to the choana, will determine the feasibility of entering the sinus by way of the intranasal route. Edema, rarefying and condensing osteitis can be recognized in the ethmoid cells. Much valuable information, indispensible for correct diagnosis, awaits us on the film.

In association with x-ray, a word about radiopaques. If one could really depend on the accurate interpretation of "signs of sinusitis"[5] thereby afforded, their diagnostic value would be beyond question. The sinus spaces should be filled after the removal of all possible discharge to prevent deception due to a mass of discharge simulating a polypus. The efficacy of the Proetz displacement method of radio-paque filling seems to be still somewhat of a mooted question. So many conditions interfere with the "acceptance" of the solution through a small ostium, that the negative test of "non-acceptance" is no absolute indication of infection; and if the radio-paque does enter the negative pressure which sucks it in it may also cause misleading congestive changes in the mucosa.

Speaking of sinus surgery, Sewall[6] says "the inability to discover the true focus, the removal of the wrong focus, or the incomplete treatment of the right focus, have brought a certain approbrium on the focal infection theory. Incomplete treatment of the right focus is practiced so commonly in connection with sinus disease that the specialists must take the onus of the lack of understanding on the part of many of the medical profession of the importance of sinus infection."

With regard to focal infection, let us have a common understanding. When we say we have eradicated all the foci of infection from the upper respiratory tract what we really mean is that we have removed infected tissue, drained or cleared out an infected cavity.[7] Following operation, let us realize that there may be organisms present on adjacent tissue which continue to live, multiply and elaborate toxins with the formation of a purely bacterial focus of infection, tending to keep up secondary systemic disease. In such cases, recovery must come from building up the patient's defensive forces, not from further surgery. Local vaccine therapy or vaccines made from a pathogen-selective culture may aid.

Before surgery, diet, climate and sunshine play an important role in the prevention and cure of sinus infection. Shea says, "the older my sinus patient happens to be the quicker I send him searching for the sun."[8]

In our surgical work let us keep anatomy and physiology ever before us—realize that an imperfect anesthetic frequently means an incomplete operation—that acute sinusitis is very rarely surgical and finally the admonition of Skillern,[1] when he said: "to deliberately rip out an ethmoid capsule for the purpose of removing an unlocated source of suppuration in the nose, is like putting one's hand into a basket of snakes to find an eel. You may be successful, but the chances are small; furthermore, you may get your hand badly bitten in the bargain."

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DISCUSSION

Dr. Joseph C. Beck, Chicago: I do not think that Dr. Ford need to have apologized for the title of his paper. I had a chance to see this paper, which Dr. Ford was kind enough to send to me. I would like to entitle it "Sinus Surgery Then and Now," from my own standpoint particularly. I must consider the remark made concerning the formation of a group of competent aurists and rhinologists, who would band together to write a volume on this work so that the younger men can safely say they know what to do in sinus disease. When he got through, if he did read it, which he would not, he would find in each case what he could best do. We of the earlier school had to do pioneer work, and might be ashamed of it. I am not. We had to feel our way through. Many of the conditions are not yet cleared up. But consider for instance the number of cases of hyperplastic or waterlogged noses operated on then, and now never, unless there are polypoid obstructions; there you must do something and oftentimes it is a minor operation for which the patient is grateful. But to try and cure that condition, which we had to do and did not get very far with it—that is a thing of the past.

One thing I have noted in papers presented is the paucity of posterior sinus disease. Why do they always talk about the antrum and the frontal sinus? Maybe they mention the ethmoids, but only the anterior, and so far as the sphenoids and posterior ethmoids are concerned, that is like the labyrinth in former days. We know they are important in the management of sinus disease. X-ray or bacteriologic examination or blood will tell us the underlying pathology in the sinus, but it really is a matter for biopsy, not with the naked eye but with the microscope, to see why so many failures are obtained. The bone pathology is very much neglected and poorly understood. The bones in the head are different from other bones. That is because we have in the maxillary sinuses the only place except the anterior portion of the ethmoid and the orbit, the only place where we have actual true periosteum supplying the bone. The internal lining of every cell in the ethmoid has a nutritional value to the bone, and it seems to be not well understood by men who are dealing with sinus disease, the underlying osteitis. The end result will be dependent upon what the pathology was. No X-ray with or without opaque substances can make a final diagnosis.

The author mentioned the Bucky diaphragm. You cannot interpret the sinus mucosa after study with that. The subject is very large, and he presented it very well.

Dr. Austin A. Hayden, Chicago: Dr. Beck can properly be called, if not the father of otolaryngology, at least the popularizer of it. While much can be gained in regard to ill-advised nasal surgery from the microscope, there is another place where even more definite information can sometimes be found, and that is in the courtroom, in the malpractice suit-nasal surgery that was not properly advised or at least did not result favorably.

In connection with what Dr. Beck has said and Dr. Ford has mentioned in his paper, let me say this about the bones of the nose. I recently had an experience with a case that had had a submucous resection done, and shortly thereafter—within four days—it was thought necessary to go in and remove some more of the nasal septum, whether bone or cartilage I do not know, but a very poor result was obtained. There was a considerable period of high temperature which was described in great detail to the jury, as was the loss of a large percentage of that man's septum, and it resulted in an unfavorable verdict for the doctor concerned. That is a case I believe of ill advised surgery —the attempt to re-operate in the presence of a septal abscess.

Dr. O. E. Van Alyea, Chicago: I enjoyed Dr. Ford's paper very much, and also Dr. Joe's remarks. There is a tendency in the literature at the present time toward conservatism in sinus surgery. There is also a tendency toward radicalism by certain operators throughout the country. There is no question but that both are right, and both have their points. I think this proposed symposium or publication which would include many of the fundamentals with which to guide us in rhinologic surgery is highly important and highly indicated at the present time. There should be some happy meeting ground for the two schools. The statement has been made that if surgery is done in the nose it should be thoroughly done—that if operations on the sinuses are to be performed they should be extensive enough to accomplish what one sets out to do. Sir Herbert Tilley said that in the presence of sinusitis we should use all means at our command to eradicate the disease, no matter what has to be done. The idea "once a sinus, always a sinus" is prevalent in the laity throughout the country and is not entirely founded on fiction; there is quite a basis for it. I think much of that can be traced to the Golden Decade following the war, when many men received a very meagre education in nasal surgery, and set out to be specialists without the proper knowledge. They were taught the technique of tonsillectomy and submucous resection and perhaps mastoidectomy, and then they set out to operate on all the patients they could find for these things. Some years ago at a meeting of the Chicago Laryngological Society, I heard the senior Dr. Andrews make a statement which perhaps he can recall, wherein he said once he invented a chisel for removal of the middle turbinate and he regretted that he had done so because it had encouraged an excessive amount of turbinectomies. I have followed his plan of leaving the middle turbinate alone in most instances, whereas previously I had thought it was a structure of minor importance. Recent research by several investigators has shown the importance of maintaining the contour within the nose; the middle turbinate and the structures beneath it. This has much to do with ventilation of the sinuses which drain into that area, and

that is no doubt due to the negative and positive pressure mentioned by O'Malley of London and McMurray of this country. Consequently it seems that removal of these highly important structures changes the conformation of the outer nasal wall and this tends to make chronic conditions in these patients. One other thing I would like to mention concerns the treatment of the frontal sinus. Dr. Ford, I think, did not speak of irrigation, which we believe is a comparatively easy and simple procedure. Irrigation of the frontal is just as safe and easy to perform as irrigation of the maxillary sinus.

Dr. A. H. Andrews, Sr., Chicago: This paper is far-reaching in the subject which it takes up. I would like to see the book that is proposed to give a concensus of opinion regarding the treatment of nasal conditions. I think there is no one here that would agree that it was of any value to him in the treatment of his own patients. I think there has been much ill-advised surgery, and I think I have done my share of it. I began studying medicine the year cocaine was discovered. There was no nasal surgery prior to that. After that, operations became very frequent and physicians ran wild on the subject of intranasal surgery. Later we have become much more conservative.

Regarding the remark about my invention of a chisel for the middle turbinate, and my having regretted it because men were encouraged to remove the middle turbinate when they did not know what else to do—a doctor from Omaha said he had one fault to find with it, it made middle turbinectomies so easy to do that it was a shame to take the patient's money. I have removed diseased middle turbinates, and when the patient came back there was a diseased antrum on that side. I have the feeling that it is a protection to that antrum, and when the turbinate is taken out the protection is removed. I would like to see a concensus of opinion on the subject of submucous resections of the septum. There are those who believe it should never be done. There are others who believe it should be done on the slightest provocation. I think there is a happy medium that is difficult to find. If a man knows how to make a success of his septal resections, he is justified in operating on a case that another man might not be justified in operating on at all. In other words, there are times when the patient would be better off to let his septum alone than to take a chance with an incompetent operation. As to transillumination being unreliable, I have seen so many transilluminators that are of no value that I wonder they are used at all, but if you will take a light that can be varied in intensity and small in area, it is going to give you a good deal of information that you need.

Dr. H. L. Ford, Champaign (closing): I wish to thank all the discussors very much, particularly Dr. Beck. I only wish he would give a course of a week's intensive review in pathology and advertise it sufficiently that we might know of it, because I think most of us are definitely weak in pathology.

THE TREATMENT OF GONORRHEA WITH SULFANILAMIDE

HOMER W. HUMISTON, M. D.
CHICAGO

Following favorable preliminary observations on the treatment of gonorrhea with sulfanilamide given by Herrold in April, 1937, before the Society of Experimental Biology and Medicine, I began to make observations on the use of this drug on clinic patients* with gonorrheal urethritis. Since that time further favorable reports have been made by Dees and Colston,[1] Herrold,[2] Reuter,[3] and Buchtel and Cook.[4] This study was begun May 1, 1937. All patients with chronic gonorrheal urethritis who were under treatment at that time were given sulfanilamide. In addition all new patients were given the drug.

This report includes 140 patients with gonorrheal urethritis who were treated with sulfanilamide. Eighty-eight of these patients were followed for varying periods after there was no demonstrable evidence of infection. There were 52 patients who either lapsed treatment or in whom the clinical result was unsatisfactory during the period of observation.

The treatment given was fairly standardized, as was also the procedure by which "cure" was determined. The dose of sulfanilamide was as follows: 45 grains daily for two days, 30 grains daily until gonococci were no longer found, and 15 grains daily until the course of provocatives was completed. During the succeeding period of observation no medication was prescribed. A mild urethral injection (usually 1:4000 neutral acriflavine) was administered anteriorly as long as the urethral discharge continued. A few of the earlier patients were given sulfanilamide, 30 grains daily, as an initial dose. We were able to see a quicker response to the 45 grain daily dose, but these cases are not separated in the analysis as the difference was not striking.

A diagnosis was made by identifying gonococci in every case before treatment was started. At each visit inspection of the first and second glasses of voided urine was made. When the first glass of urine became clear, smears of shreds from this source were examined for gonococci.

From the Department of Urology, Northwestern University Medical School.

These patients were treated at the Illinois Social Hygiene League, Chicago.

In many instances shreds were either absent or were too fine to be picked up on a wire loop. About two to three weeks after the clearing of the first glass of urine, or the last positive shred examination, a systematic course of provocative treatments was carried out. The prostate was examined digitally, a fresh smear of the prostatic secretion was examined for pus, and a stained smear for bacteria. The caliber of the urethra was checked with a diagnostic sound, and at successive visits instillations of ¼%, ½%, and ¾% silver nitrate were made. Following this, a subcutaneous injection of 0.5 cc. gonococcus vaccine was given, and an examination of ejaculated semen for pus and organisms was made. All of the patients described as "cured" in this report had the above course of provocative measures and a succeeding period of observation of from four to twelve weeks without evidence of gonococcus infection.

There were 40 patients with acute anterior gonorrheal urethritis of a duration of one to twenty days before starting treatment with sulfanilamide. Twenty-nine of these patients admitted previous gonorrheal infections. While taking sulfanilamide, three patients developed a posterior urethritis with the characteristic cloudy second glass of urine. These will be included among the group of patients with posterior urethritis. Nineteen of the 37 patients with uncomplicated anterior urethritis had a clear first glass of urine in less than one week. In the remaining 18 patients varying periods up to seven weeks were required to clear the first voided specimen, although only 4 patients of this group had any evidence of gonococcus infection after four weeks. Except for untoward reactions to the drug, there were no complications in this group. One patient had a clear first voided urine in three days, and gonococci were not demonstrated after three weeks of treatment. Three weeks later the series of provocative treatments was started. Following the subcutaneous injection of gonococcus vaccine there was a flare-up of the urethritis which subsided in two weeks, and the series of provocative treatments was repeated without another recurrence.

Twenty-nine of the 51 patients with posterior urethritis had a clear second voided urine in one week or less, 14 patients required from one to ten weeks, and 8 patients had a clear second urine when started on sulfanilamide therapy. Twenty-five of the 51 patients did not show any evidence of gonococcus infection after two weeks. The remaining 26 patients required up to eleven weeks of treatment before gonococci were no longer demonstrated.

In this group several complications of the disease were seen. Six patients developed acute epididimitis while taking sulfanilamide. Two additional patients had acute epididimitis when treatment was started. In all of these the course was very favorably modified as to duration and severity of the inflammation as compared with patients treated without sulfanilamide. One patient had an acute uveitis, which was assumed to be a metastatic gonococcus lesion. Smears from the conjunctiva revealed no bacteria. This complication arose during treatment with sulfanilamide and subsided in a few days. One patient had diffuse arthritic and muscular pains without acute arthritis when the drug was started. This was assumed to be gonorrheal in origin. He required eight weeks of treatment before the second voided urine was clear. The joint and muscular pains improved gradually and had entirely disappeared when gonococci were no longer demonstrated in the genitourinary tract.

About one-half of the patients complained of some degree of dizziness, drowsiness, nausea, weakness, or headache while taking the 30 grain or 45 grain daily dose. A few patients not included in this report could not tolerate 10 or 15 grains daily on account of the severity of the above symptoms, and were treated by other means. There were 4 patients with skin eruptions which developed during the course of sulfanilamide therapy. One of these improved without stopping the medication. In the other three patients the eruption disappeared after the drug was discontinued.

In this series none of the more serious complications of sulfanilamide therapy, which have been reported, were seen. It is possible, however, that they may have occurred without our knowledge among the patients who lapsed treatment.

In patients with gonorrheal prostatitis who were treated at this clinic without the use of sulfanilamide, it has required a period of weeks or months after gonococci were no longer demonstrated to reduce the pus content of the prostatic secretion to five or ten pus cells per high power field. In all the patients in this series who had not had a previous gonorrheal prostatitis, the

prostatic secretion was free of pus at the time of starting the provocative measures. In some of the patients who had had a previous gonorrheal prostatitis, there was often some residual prostatitis after gonococci could no longer be demonstrated. This was generally much less than had been observed prior to the use of sulfanilamide and generally responded in a few weeks to sulfanilamide and prostatic massage.

In 7 patients smears of urinary sediment from the specimen voided after prostatic massage were stained and examined. These examinations were made after gonococci could no longer be demonstrated in shred smears. In all of these patients gonococci could be found for several days or weeks after they could no longer be demonstrated by the shred smear method. The number of these examinations was insufficient to establish the length of time that gonococci persist after they are no longer demonstrable by the routine laboratory methods applied to this series of patients.

There is frequently a rapid disappearance of pus from the smears of urethral discharge and shreds from the first voided specimen, which is out of proportion to the number of gonococci still present. With the clearing of the first glass of urine, shred smears often reveal enormous numbers of gonococci and relatively few leucocytes.

Of the 52 patients who were not followed until cured, 12 patients with posterior urethritis were given sulfanilamide for a period of six to twelve weeks without substantial modification of the infection. There were 40 patients seen during the period this study was in progress who were very irregular in attendance or who lapsed treatment and were not observed further.

COMMENT

Eighty-eight male patients with gonorrheal urethritis were treated with sulfanilamide and followed to "cure" and for varying periods thereafter. Twelve additional patients showed practically no benefit from the medication in six to twelve weeks. It is felt that the clinical course of gonorrheal urethritis is definitely shortened by the use of sulfanilamide, that the incidence of complications is lessened, and that the occurrence of sequelae is greatly decreased. About one-half of those given sulfanilamide had minor reactions to the medication. No serious reactions were seen. A few patients were unable to tolerate the drug and were treated by other means.

However, it is recognized that serious reactions to this drug do occur, and it is felt that patients receiving sulfanilamide should be kept under close observation and the drug discontinued if untoward reactions occur.

6 N. Michigan Avenue.

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THE SPASTIC COLON DIET

E. E. Cornwall (Am. J. Dig. Dis. and Nutr. 3:773, Dec. 1936).

In supplying a smooth diet for the spastic colon, milk is the preferred food as a source of protein. The milk, or milk preparations, may be mixed with water, cereals, strained fresh fruit juices, and strained decoctions of vegetables. Cream and cottage cheeses are suitable, and rennin-made cheese such as American cheddar, Parmesan, and Edam may sometimes be used if properly comminuted and made smooth.

Other foods advised in the treatment of this condition include eggs, cereals and toast, sugars except cane sugar, butter, cream, olive oil, and ripe bananas, which are accorded first place among the acceptable fruits. A combination of ripe bananas and cream cheese is recommended as especially serviceable. Other fruits include orange, grapefruit, or pineapple juice, and baked and stewed apples. Smooth vegetables, raw tomato, water, and salt in moderation complete the diet. Spices, tea, coffee, and animal flesh are forbidden.

NIGHT BLINDNESS DUE TO VITAMIN A DEFICIENCY

A Consideration of Its Importance in Traffic Problems. H. Jeghers. New Eng. J. Med. 216:51, Jan. 14, 1937.

The importance of vitamin A in providing visual purple for the retina of the eye is discussed in this article, and a number of case reports of night-blindness, or hemeralopia, due to vitamin A deficiency are presented. These cases were quickly cured when given foods rich in vitamin A, such as butter, milk, and raw carrots, supplemented by administration of carotene.

The author believes that numerous cases of mild or moderate hemeralopia are responsible for defective vision of motorists and are the cause of many traffic accidents during night driving on dimly lighted highways. An extensive study of this condition among motorists and aviators would be worth while.

CORONARY THROMBOSIS VS. DISSECTING ANEURYSM IN DIFFERENTIAL DIAGNOSIS

L. Minor Blackford and Carter Smith, Atlanta, Ga. (*Journal A. M. A.*, July 24, 1937), report a case of dissecting aneurysm of the aorta that occurred in a highstrung, hypertensive, fat man, aged 61; the diagnosis was definitely made before necropsy. Death occurred from rupture of the dissecting aneurysm into the pericardium thirty-six hours after the original break through the intima. The long history of hypertension, the agonizing, tearing pain as though something had been "torn loose inside," the temporary loss of vision, the nausea, the vomiting, the shock, the murmurs at the aortic region and the absence of pulsation in one extremity, the period of relative comfort with the dramatic death on slight effort, and the rupture into the pericardium in this case were all typical of dissecting aneurysm of the aorta, as McGeachy and Paullin have recently pointed out. The diagnosis of dissecting aneurysm of the aorta should be made without difficulty, if it is taken into consideration in differential diagnosis. In spite of the rarity of the condition, therefore, it is exceedingly important to make the diagnosis to prevent too much being done and to keep the patient as comfortable and quiet as possible in the hope that he will recover with a double-barreled aorta.

DID NOT TAKE OFF HIS HAT

A salesman was driving along a country road one day when he saw a red-headed Negro child playing in front of a little shack sitting on the edge of a clearing. He had never seen a red-headed colored child before, so his curiosity was aroused. Stopping his car in front of the yard, he called out to the old colored mammy who was sitting on the porch:

"Is that your child?"

"Yassuh, he is," answered the mammy.

"Well, tell me something," he went on, "how did he happen to get red-headed?"

"He was borned lak dat," replied mammy.

"I can't understand that," said the salesman. "You certainly don't have red hair. Is there any red hair back in your family?"

"Naw suh, not a bit," replied mammy.

"Well, how about the father of the child, is he redheaded?" the salesman persisted.

"Ah don' know dat, mister," answered the mammy. "You see, dat gentleman didn't take off his hat."

FROM THE ETHICAL RELATIONS COMMITTEE OF THE AMERICAN MEDICAL ASSOCIATION

The following opinion was rendered by the Ethical Relations Committee with reference to the use of Neon signs by physicians:

"The display of Neon electric signs by ethical physicians is indicative of self laudation and defying the traditions and lowering the tone of our profession. As implied, it is unprofessional to disregard local customs and offend recognized ideals. Modesty and sobriety is indicative of our profession, while Neon electric signs savor of quackery."

GONADOTROPIC SUBSTANCE IN TREATMENT OF ACNE

Of the thirty-nine cases of acne vulgaris that Grace E. Williams and Ruben Nomland, Iowa City (Journal A. C. A., Aug. 21, 1937), treated, 85 per cent of those given gonadotropic substance from pregnancy urine showed moderate to marked improvement, while 78 per cent of the control group given sterile water showed the same degree of improvement. Although menstrual periods became more regular in nearly all the women given gonadotropic substance, they also became more regular in more than half of the patients of the control group. A correspondingly uniform improvement did not occur in the condition of the skin of those whose menstrual periods became regular. There were individual cases in which improvement of the skin paralleled the change from an irregular menstrual cycle to a regular cycle, but there were also individual cases in which this did not occur. The results show a slightly greater degree (7 per cent) of improvement in the acne of the group treated with gonadotropic substance from pregnancy urine compared with the control group. The difference is hardly sufficient, however, to justify the expense and effort of intramuscular administration of the gonadotropic preparation. It would seem that local therapy is the most important factor in the management of acne.

LOBELINE SULFATE: ITS PHARMACOLOGY AND USE IN THE TREATMENT OF THE TOBACCO HABIT

Because a drug which would enable the confirmed smoker to give up this habit without hardship would be of obvious importance, and because lobeline resembles nicotine so closely in many of its pharmacologic properties, Irving S. Wright and David Littauer, New York (*Journal A. M. A.*, Aug. 28, 1937), undertook to determine whether or not it possessed any of those very actions which interdict nicotine for patients suffering from disease of the peripheral circulation and whether its use could be safe in the routine "cure" of the tobacco habit. They find that lobeline sulfate in doses of 0.008 Gm. (one-eighth grain) orally is not suitable for general use as a "cure" for the tobacco habit. The symptoms are predominantly gastro-intestinal, variable from patient to patient, and in general too drastic in most individuals. Lobeline sulfate produces a nicotine-like effect on the peripheral circulation. In certain individuals a vasoconstriction with a drop in surface temperature occurs. This is not as constant, when the mentioned dosage and route of administration are used, as the effect obtained by smoking a cigaret. Lobeline (administered in the form of lobeline sulfate), like nicotine, produces an elevation in blood sugar in certain individuals. Further study with smaller doses may increase its usefulness for the purpose, but its widespread use should not be encouraged until such studies have been completed.

Every year is "leap year" to the pedestrians.

Say it with brakes and save the flowers.

To avoid that run-down feeling, cross crossings cautiously.

Society Proceedings

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Wednesday, November 3, 1937

Regular Meeting

PROGRAM

RECENT DEVELOPMENTS IN THE TREATMENT OF DEMENTIA PRAECOX

The Program will be presented by Dr. Charles F. Read of the Elgin State Hospital and his associates and Dr. Major H. Worthington of the Research & Educational Hospital and his associates.

1. Film "Treatment of Dementia Praecox by Insulin Shock and Cardiozol".....Charles F. Read, Managing Officer, Elgin State Hospital.
2. "Insulin and Metrazol Shock Treatment of Dementia Praecox and other Functional Psychoses" (Illustrated by motion pictures).....A. A. Low, Ass't. Dir. Psychiatric Institute, University of Illinois College of Medicine.

DISCUSSION

D. Louis Steinberg, Elgin State Hospital.
Gert Heilbrunn, Elgin State Hospital.
H. Douglas Singer.
Ralph C. Hamill.

OGLE COUNTY

A November Meeting of the Ogle County Medical Society was held at the home of Dr. Warmolts in Oregon, Friday, Nov. 19, 1937.

Meeting was called to order by Dr. Warmolts and following the disposition of business, officers were elected for 1938. The officers of 1937 were returned to their respective offices.

Dr. Frank Rector, of Evanston, Representative of the American Society for the Control of Cancer, was introduced by Dr. Pettit of Ottawa.

Dr. Rector gave a very instructive illustrated talk on the Cancer Problem. Following the meeting, all were invited to partake of a luncheon.

A. R. Bogue, Secretary.

Marriages

Glen J. Allen to Miss Dona Luke, both of Peoria, September 25.

Evan Mansfield Barton to Miss Jane Purvis High, both of Chicago, October 16.

Gordon Taylor Burns, Chicago, to Miss Mildred Birmingham of Berwyn, Ill., October 9.

John Joseph Hanlon, Chicago, to Miss Mayme Mangan, in Evanston, Ill., August 31.

Phillip C. Hemming to Miss Janet R. Hawkins, both of Elgin, Ill., September 18.

Felicia D. Shlepowicz, Chicago, to Mr. Joseph M. Koch of Granite City, Ill., in June.

Personals

Dr. Paul H. Harmon, Springfield, discussed "Anterior Poliomyelitis," before the Madison County Medical Society, November 5.

Marion Hood, Ph.D., discussed "Trichiniasis" and Bertha Kaplan Spector, Ph.D., "Amebiasis," before the Chicago Council of Medical Women November 5.

At a meeting of the Chicago Laryngological and Otological Society, November 1, Dr. Morris A. Glatt discussed "Regeneration of Mucous Membrane After Sinus Operations."

Dr. Maurice I. Kaplan, among others addressed the Chicago Society of X-Ray Technicians November 4 on "Anatomy and Physiology of the Gastro-Intestinal Tract."

At a meeting of the Chicago Surgical Society, November 5, Dr. John Martin discussed "Ventricular Changes in the Presence of Intracranial Pathology, with Demonstration of Models."

The Chicago Pathological Society was addressed November 8 among others, by Drs. Paul R. Cannon and Theodore E. Walsh on "Potential Dangers of Intranasal Medication."

Dr. Charles B. Huggins, among others, addressed the Chicago Urological Society, November 18 on "Treatment of Tuberculous Wounds Followng Nephrectomy."

Dr. Frederick B. Moorehead, Chicago, discussed "The Use of Plastic Traction in Jaw Fractures," before a joint meeting of the Sangamon County Medical Society and the G. V. Black District Dental Society in Springfield, November 4.

At a meeting of the German Medical Society of Chicago, November 2, Drs. Leo J. Latz and Franklin E. Hall discussed "Recent Studies on Fertility and Sterility in Women," and "The Inverted Uterus," respectively.

A symposium on sulfanilamide was presented before the Chicago North Shore Branch of the Chicago Medical Society, November 2, by Drs. Bernard Fantus, John A. Bigler, George S. Livingstone and Russell D. Herrold.

Dr. Joseph A. Campbell, managing officer of the East Moline State Hospital, has been appointed acting head of the Anna State Hospital,

pending the appointment of a successor to the late Dr. Ralph A. Goodner.

Dr. Charles H. Starkel, Belleville, was honored October 25, when a fifty year Masonic membership jewel was presented to him by the Grand Lodge of Illinois. He has practiced in Belleville fifty-three years.

The Chicago Society of Internal Medicine was addressed November 22, among others, by Dr. Harold C. Lueth and Thrift G. Hanks on "Some Unusual Reactions to Nitroglycerin in Patients with Hypertension."

The Chicago Gynecological Society was addressed November 19 by Drs. Max Cutler on "Complications Associated with the Radiation Treatment of Cancer of the Cervix," and Edward L. Cornell and Dorrin F. Rudnick on "Clinical Manifestation and Treatment of Stricture in Women."

At a joint meeting of the Chicago Orthopaedic Society and the Chicago Roentgen Society, November 12, the speakers were Drs. Daniel H. Levinthal and Hollis E. Potter on "Benign Tumors of Bone—Diagnosis and Treatment," and "Roentgenological Aspects of Low Back Pain," respectively.

Loyola University School of Medicine has annexed the dispensary and outpatient clinical facilities of Mercy Hospital, 2536 Calumet Avenue, to supplement the overcrowded clinics at the medical school. Dr. John G. Powers has recently been officially appointed assistant dean of the medical school.

Howard J. Shaughnessy, Ph.D., has resigned as director of the division of laboratories of the Illinois State Department of Health, Springfield, to become associate professor of bacteriology and public health at the University of Colorado School of Medicine, Denver. Dr. Shaughnessy has held the position with the Illinois department since 1931.

Drs. Ralph M. Tyson and Chevalier L. Jackson, Philadelphia, discussed "Diagnosis and Treatment of Foreign Bodies in the Respiratory Tract," before the Peoria City Medical Society in Peoria, November 16. At a meeting of the society, November 2, Drs. Harry Costeff and Julius Steinfeld, Peoria, discussed "Insulin Shock and Other Methods of Therapy in Schizophrenia."

Dr. Rollo K. Packard, president of the Illinois State Medical Society, addressed the Jewish Physicians Fellowship Club of Chicago and suburbs on November 1, on the subject of "Medical Economics."

Dr. Henry Buxbaum presented two papers on obstetrics before La Salle County Medical Society on November 4, subjects, "Indications and Contraindications and Technique for Forceps Delivery," and "Indications and Technique for Cephalic and Podalic Version."

Dr. William B. Serbin and Harry Leichenger presented a program before Lee and Whiteside County Medical Societies on November 4; their subjects are "Repair of Obstetrical Injuries"; "Difficulties of Obstetrical Diagnosis," and by Dr. Leichenger, "Meningitis."

Drs. Paul H. Harmon of Springfield and W. J. Dieckmann of Chicago gave a program before Jefferson-Hamilton County Medical Society on November 5; subjects respectively, "Poliomyelitis," and "Indications and Contraindications and Technique of Forceps Delivery."

Drs. Charles B. Reed and Joseph K. Calvin presented a program before the Hancock County Medical Society on November 1, on "Medical Complications of Pregnancy" and "Treatment of Pneumonia."

Drs. LeRoy H. Sloan, C. C. Maher and Harold A. Sofield addressed the Tri-County Medical Society at Monmouth on November 2; their subjects respectively were "Correlation of the Clinical Picture of Acute Vascular Insults to Various Parts of the Body," "Hypertension," and "Operative Treatment of Residual Infantile Paralysis."

Drs. Julius Hess and Isaac Abt presented a pediatrics program before the LaSalle County Medical Society at Ottawa on November 9, on "Diseases of the Newborn," and "Management of the Newborn."

Dr. Italo F. Volini gave a paper on "Etiology of Heart Disease," before the Bureau County Medical Society at Spring Valley, November 9.

Dr. Robert S. Berghoff addressed the members of the Jefferson-Hamilton County Medical Society at Mount Vernon on November 11, subject, "Heart Disease."

Dr. A. F. Lash presented a program before Coles-Cumberland County Medical Society on November 4, subject, "Recent Advances in Management of Puerperal Sepsis."

Dr. Julius H. Hess was appointed a member of the Illinois Board of Pubic Welfare Commissioners by Governor Horner. The other members of the Board are Willoughby Walling, Charles Schweppe of Chicago, Rodney Brandon of Batavia and Mary Humphrey of Springfield.

News Notes

—At the November 4 meeting of North Side Branch, Chicago Medical Society, a very large audience was thrilled by a program featuring the Japan-China war. Dr. Robert B. Preble told of his hair-raising experiences during the accidental bombing of Shanghai, his escape by boat to Manila, and by air to Hawaii. Mr. G. H. Wang, Chinese Vice-Consul, detailed the causes underlying the war. And Dr. H. E. Davis displayed war scenes on the screen.

—The library at the University of Illinois College of Medicine has recently received two additions to its collection. Dr. William Allen Pusey, Past President, American Medical Association, presented a collection of some 1,500 selected books and an assortment of separates and reports in the field of surgery and surgical pathology. Hertzler, Halstead, Kan., gave a collection of about 7,000 volumes and 8,000 separates, largely in the leld of surgery and surgical pathology. Both collections are available to students and the medical profession.

—The sixty-third annual meeting of the Southern Illinois Medical Association was held in Pinckneyville, November 9. The speakers included:

Dr. Roland M. Klemme, St. Louis, Management of Head Injuries.

Dr. Marion L. Klinefelter, St. Louis, Early Treatment of Fractures.

Dr. Walter C. Alvarez, Rochester, Minn., Useful Hints in the Treatment of Indigestion.

Dr. Quitman U. Newell, St. Louis, Treatment of Prolapsus Uteri.

Dr. Leon Bromberg, St. Louis, Present Status of Artificial Heat Therapy.

Dr. William H. Olmsted, St. Louis, Protamine Insulin.

Dr. Frederick V. Emmert, St. Louis, Analgesia in Obstetrics.

Dr. Albert B. McQuillan, East St. Louis, Rarefying Conditions in Bone Disease.

—Dr. Morris Edward Davis, associate professor of obstetrics and gynecology, and Dr. Arthur K. Koff, formerly instructor of obstetrics and gynecology, Division of Biological Sciences, University of Chicago, were awarded the annual prize of $100 by the Central Association of Obstetricians and Gynecologists for the most meritorious work done by its members. Their paper is entitled "The Experimental Production of Ovulation in the Human." Dr. Davis won the Gold Medal Award for the best scientific exhibit at the annual session of the American Medical Association in 1935.

Dr. Alfred H. Washburn, director, Child Research Council, University of Colorado, Denver, delivered a lecture under the Elizabeth McCormick Child Research Grant of the Institute of Medicine of Chicago at a joint meeting of the institute and the Chicago Pediatric Society, November 16, at the Palmer House, on "The Place of Child Research in Medicine: Some Contributions to Medical Thought Suggested by a Study of the Growth and Development of the Individual Child." Dr. James B. Herrick, professor emeritus of medicine, Rush Medical College, delivered a public lecture under the auspices of the institute at Thorne Hall, Northwestern University, November 19, on "How Knowledge of the Heart and Its Diseases Has Developed."

—Colonel M. A. Reasoner, Medical Corps, U. S. A. of the class of 1899, delivered the Armistice Day lecture sponsored by the Faculty and Alumni of the College of Medicine of the University of Illinois.

—Dr. Corneille Heymans, professor of pharmacology and therapeutics, University of Ghent, Belgium, presented the Louis A. Greensfelder Memorial Lecture at the Rothschild Auditorium, Michael Reese Hospital, November 23, on "The Physiological Considerations of Surgical Intervention in Hypertension." Discussions presented by Drs. Harry Goldbatt, professor of experimental pathology, Western Reserve University School of Medicine, Cleveland, on "Surgical Application of the Physiological Principles in Experimental Hypertension"; Max M. Peet, professor of surgery, University of Michigan Medical School, Ann Arbor, and Alfred W. Adson, professor of neuro-surgery, University of Minnesota Graduate School of Medicine, Rochester,

Minn., "Surgical Application of Physiological Principles in Clinical Hypertension."

—Recent changes on the faculty of Loyola University School of Medicine include the appointment of Dr. William R. Cubbins as professor and director of a new division of bone and joint surgery; julius Sendroy Jr., Ph.D., as professor and head of a new department of experimental medicine, and the appointment of Dr. Henry Schmitz, head of the department of gynecology, as head of the department of obstetrics to succeed Dr. Bertha Van Hoosen, who becomes professor emeritus. Other changes include:

Dr. Thomas F. Finegan, professor of urology.

Dr. Robert E. Cummings, assistant clinical professor in pediatrics.

Dr. H. William Elghanmer, clinical professor

Dr. William J. Pickett, associate clinical professor of surgery.

—The Birchwood Park Sanitarium has just purchased approximately $1,000 worth of x-ray equipment, it is reported by Dr. Herbert W. Gray, medical director, to increase the quality and range of its x-ray work in keeping with the recent change in emphasis to chronic ailments by the institution. The equipment will be of assistance to doctors who, under the new arrangement, desire to bring their patients to the Sanitarium for personal treatment.

Deaths

Clinton Anthony Benzie, Chicago; University of Illinois College of Medicine, Chicago, 1927; member of the Illinois State Medical Society; a physician for the child welfare bureau, city board of health; on the staff of St. Margaret's Hospital, Hammond, Ind.; aged 40; was killed, September 8, when he was struck by an automoblie.

Frank Mathias Cochems, Chicago; Rush Medical College, Chicago, 1928; aged 35; died, August 1, in Mundelein, Ill., of acute coronary thrombosis.

Harley Ross Colver, Chicago; Rush Medical College, Chicago, 1904; medical superintendent of the Carnegie-Illinois Steel Corporation Hospital; aged 63; died, August 22, of coronary thrombosis and arteriosclerosis.

Oswin Fred Koch, Chicago; Bennett Medical College, Chicago, 1915; aged 54; died, August 25, of carcinoma of the rectum.

Rudolph Johannes Kremer, Chicago; Philipps-Universität Medizinische Fakultät, Marburg, Prussia, Germany, 1923; assistant professor of pathology, University of Illinois College of Medicine; served with the German Army during the World War; aged 40; director of the pathological laboratory of the Augustana Hospital, where he died, August 14, of mitral stenosis, rheumatic heart disease and pulmonary thrombosis.

Elijah Sherman Lake, Chicago; Loyola University School of Medicine, Chicago, 1921; aged, 50; on the staff of the Peoples Hospital, where he died, August 22, of chronic myocarditis and hypertension.

Edward Frederick Law, Fairbury, Ill.; Rush Medical College, Chicago, 1903; past president of the Livingston County Medical Society; president of the township high school board of education; aged 63; died, August 5, of angina pectoris.

Ernest Mammen, Bloomington, Ill.; Rush Medical College, Chicago, 1884; past president of the McLean County Medical Society; fellow of the American College of Surgeons; instructor in surgical diagnosis, Medical Department, St. Johns University, Shanghai, China, and community director of health education for China, 1923-1924; served on World War examining board; surgeon to the Brokaw and St. Joseph hospitals; aged 81; died, August 22, of coronary thrombosis.

Richard Bartlett Oleson, Lombard, Ill.; Northwestern University Medical School, Chicago, 1893; fellow of the American College of Physicians; formerly county coroner; aged 67; died, August 6, at the Johns Hopkins Hospital, Baltimore, of benign prostatic hyperthrophy and staphylococcic septicemia.

Charles Albert Robbins, Dixon, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1892; veteran of the Spanish-American and World wars; aged 71; died, August 29, in the Veterans Administration Facility, Hines, of cerebral hemorrhage.

William Spencer Ryan, Chicago; Rush Medical College, Chicago, 1895; also a dentist; served during the World War; aged 68; died, October 23, in the Veterans Administration Facility, Hines, Ill., of cerebral hemorrhage.

William Allen Stoker, Centralia, Ill.; Medical College of Ohio, Cincinnati, 1885; formerly managing officer of the Kankakee State Hospital, Kankakee, Ill., and formerly superintendent of the Anna (Ill.) State Hospital; aged 73; died, August 22, of cerebral hemorrhage.

Arthur Teninga, Chicago; Rush Medical College, Chicago, 1919; aged 42; died suddenly, August 6, of coronary thrombosis.

Charles Albert Wade, Chicago; Rush Medical College, Chicago, 1891; member of the Illinois State Medical Society; formerly professor of pediatrics at the Bennett Medical College, medical examiner for the Prudential Insurance Company; aged 71; died, August 18, of cerebral homorrhage, hypertension and arteriosclerosis.

Herbert Le Roy Walker, Rock Island, Ill.; Keokuk (Iowa) Medical College, College of Physicians and Surgeons, 1904; on the staff of St. Anthony's Hospital; aged 56; died, August 11, of coronary thrombosis.

Charles Delamere Wall, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; aged 60; died, August 10, in Manteno, Ill.

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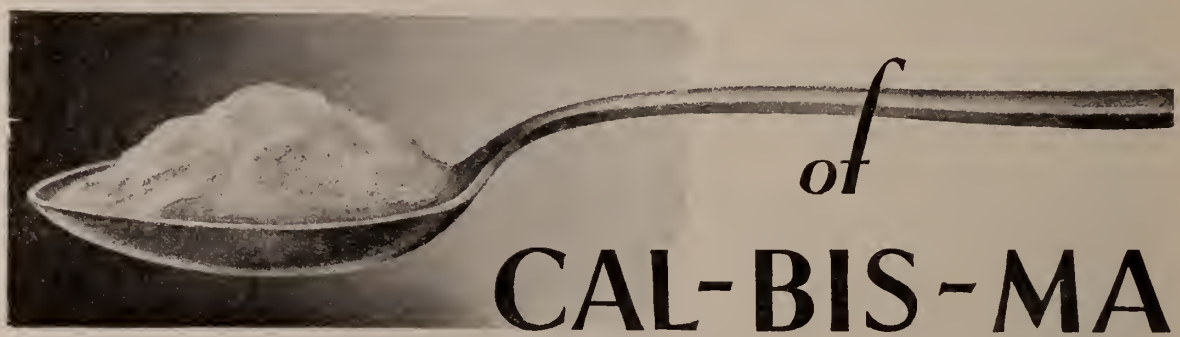
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Book Review

Pneumothorax Directory. American College of Chest Physicians. Price, $1.00.

A Textbook of Medicine. By American Authors. Edited by Russell L. Cecil, A. B., M. D., Sc. D., Professor of Clinical Medicine, Cornell University Medical College; Associate Attending Physician, New York Hospital, New York City. Associate Editor for Diseases of the Nervous System: Foster Kennedy, M. D., F. R. S. E., Professor of Neurology, Cornell University Medical College; Director, Department of Neurology, Bellevue Hospital, New York City. Fourth Edition, Revised and Entirely Reset. 1614 pages with 42 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $9.00 net.

In this fourth edition the authors and editor bring every subject up-to-date and thereby gives the student and physician an authoritative presentation of present day internal medicine.. A brief survey of this revision gives one a fine perspective of the amazing changes which have taken place in medicine within the short space of one decade.

In this edition a number of entirely new topics have been introduced and the edition also contains an unusually large number of treatise on old subjects.

Physical Therapy in Arthritis. By Frank Hammond Krusen, M. D. With 21 illustrations. New York: Paul B. Hoeber, Inc., 1937. Price, $2.25.

In this presentation an attempt has been made to show, by direct quotation from many authors on the subject of arthritis, that physical therapy plays a most important part in the treatment of this ever present disease.

The book has been prepared chiefly as a guide for the general practitioner in medicine who wishes to give adequate attention to this phase of the complexed problem of the treatment of arthritis.

The Business Side of Medical Practice. By Theodore Wiprud, Executive Secretary of The Medical Society of Milwaukee County; Lecturer in Medical Economics at the Marquette University School of Medicine. 177 pages with 21 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $2.50 net.

Materia Medica, Pharmacology, Therapeutics and Prescription Writing. By Walter Arthur Bastedo, Ph. M., M. D., Sc. D., F. A. C. P., Consulting Physician, St. Luke's Hospital, New York, St. Vincent's Hospital, Staten Island, and the Staten Island Hospital; President, United States Pharmacopoeial Convention 1930-1940; Member Revision Committee U. S. Pharmacopoeia. Formerly Curator of the New York Botanical Garden, Attending Physician, City Hospital, New York, Instructor in Pharmacology, Cornell University, Associate in Pharmacology and Therapeutics, and Assistant Clinical Professor of Medicine, Columbia University. Fourth Edition, Reset. 778 pages with 81 illustrations. Philadelphia and London: W. B. Saunders Company, 1937. Cloth, $6.50 net.

In this edition there has been general revision of the whole text. The original idea of making this book for the practicing physician rather than for the scientist has continued in this edition.

This work is an adaptation, for the most part, of lectures delivered at Columbia University. The author has laid most stress on those things that bear on practice, even to the exclusion of some matters of great interest in pharmacology.

Recent Advances in the Study of Rheumatism. By Frederick John Poynton, M. D., and Bernard Schlesinger, M. D. Second Edition. 51 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1937.

In this second edition the authors have brought the subject of acute rheumatism in childhood up-to-date and devoted a chapter to the industrial aspect of rheumatism, which is becoming of increasing importance.

Book Review

Methods of Treatment. By Logan Clendening, M. D. Sixth Edition. St. Louis. C. V. Mosby Company. 1937. Price $10.00.

This book furnishes an outline of all the methods of treatment in internal medicine. It is made to conform to the eleventh edition of the United States Pharmacopoeia.

The work contains several chapters on special subjects by outstanding authors in their respective specialties.

Crippled Children, Their Treatment and Orthopedic Nursing. By Earl D. McBride, M. D. Second Edition. St. Louis. The C. V. Mosby Company, 1937. Price $3.50.

Those who have the care and responsibility of crippled children will find this work an aid in recognizing many of the orthopedic conditions in the early stages when much can be accomplished by treatment and will also find this work a guide in preventive care which may be given to such patients.

The Management of Fractures, Dislocations, and Sprains. By John Albert Key, M. D. and H. Earl Conwell, M. D. Second Edition. St. Louis. The C. V. Mosby Company. 1937. Price $12.50.

In this edition the authors have incorporated additions and changes and methods of diagnosing and treating fractures that have been found beneficial since the publication of the authors' first edition.

The most extensive changes are those in the treatment of fractures of the spine and hip. Every chapter has been carefully reviewed and many changes with numerous substitutions have been made.

Eye-Strain and Convergence. By N. A. Stutterheim, M. D. (Rand) London. H. K. Lewis & Company, Ltd. 1937. Price 7s. 6d. net.

This work is intended for both general practitioners and ophthalmologists. It shows them how to deal satisfactorily with the extremely frequent complaint of eye strain.

Manual of Human Dissection. By Edward M. Shearer, Ph. D. Illustrated with Original Drawings by the Author. Philadelphia. P. Blokiston's Son & Company, Inc. 1937. Price $4.25.

This book is designed essentially for use in the dissecting room. The descriptive matter it contains is intended to accompany the actual infection of the dissected parts.

Pseudocyesis. By George Davis Bivin, Ph. D., and M. Pauline Klinger, M. A. The Principia Press, Inc., Bloomington, Indiana, 1937. Price, $4.00.

Ascaris. The Biologist's Story of Life. By Dr. Richard Goldschmidt. New York. Prentis-Hall, Inc. 1937. Price $3.25.

This work is a dramatic story told by the man whose work in the modern theory of hereditary and sex determination is of remarkable interest.

Twenty-Five Years of Health Progress. By Louis I. Dublin, Ph. D. and Alfred J. Lotka, D. Sc. New York Metropolitan Life Insurance Co. 1937.

This work is based on a study of the mortality of experience among industrial policy holders of the Metropolitan Life Insurance Co., 1911 to 1935.

The volume is intended for health officers, physicians, sociologists, life insurance officials and others interested in the health and welfare of the wage earning population.

Synopsis of Genitourinary Diseases. By Austin I. Dodson, M. D. Second edition with 112 illustrations. St. Louis: The C. V. Mosby Company. 1937. Price, $3.00.

In this edition there are some changes and additions to include recent advances in the treatment of Genitourinary diseases and discussion of some phases of the subject that were not included in the first edition.

Regulation of the diet has assumed a very prominent role in the treatment of infections and in the control of calculus formation. These improvements and other progress made in this specialty have been thoroughly treated and brought up to date in this edition.

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J. Buckstein (Prev. Med. 6:13, Dec. 1936).

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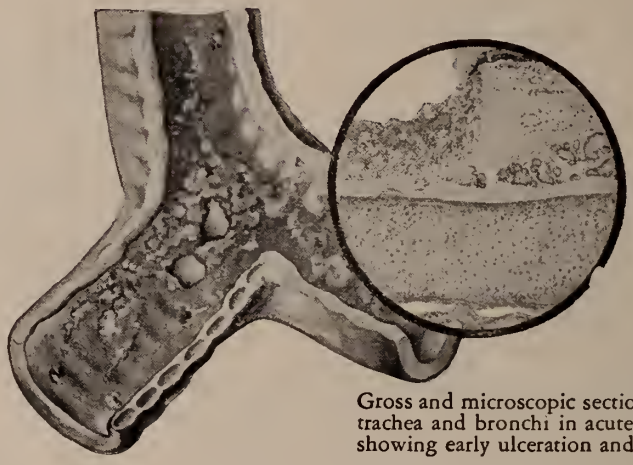
Butter and cream are among the most important fatty foods.

The author recommends the following as the skeleton of a well-balanced diet:

1. At least a pint of milk a day in some form.
2. One egg a day with a minimum of three or four a week.
3. One serving of meat, fish or poultry a day.
4. At least two vegetables a day, one to be of the green leafy variety.
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6. Butter, tomato, and potato may be advantageously included.

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